

BOSTON PUBLIC LIBRARY



3 9999 06298 240 8

WESLEYAN UNIVERSITY  
PUBLIC AFFAIRS CENTER  
College of Social Studies

Y4, v216: D36/p1.1 - 4  
WESLEYAN UNIVERSITY  
LIBRARY.



K83 HE  
No. 77:1

Accession No. 634947

PRESENTED BY  
SUPERINTENDENT OF DOCUMENTS







# INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

---

## HEARINGS

BEFORE A

### SPECIAL COMMITTEE INVESTIGATING THE NATIONAL DEFENSE PROGRAM

UNITED STATES SENATE

SEVENTY-SEVENTH CONGRESS

FIRST SESSION

PURSUANT TO

## S. Res. 71

A RESOLUTION AUTHORIZING AND DIRECTING  
AN INVESTIGATION OF THE NATIONAL  
DEFENSE PROGRAM

---

### PART 3

MAY 12, 14, AND 15; JUNE 16 AND 17, 1941

---

### ALUMINUM

---

Printed for the use of the Special Committee Investigating  
the National Defense Program



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1941

SPECIAL COMMITTEE INVESTIGATING THE NATIONAL  
DEFENSE PROGRAM

HARRY S. TRUMAN, Missouri, *Chairman*

TOM CONNALLY, Texas

JOSEPH H. BALL, Minnesota

JAMES M. MEAD, New York

RALPH O. BREWSTER, Maine

MON C. WALLGREN, Washington

CARL A. HATCH, New Mexico

HUGH A. FULTON, *Chief Counsel*

CHARLES P. CLARK, *Associate Chief Counsel*

MARJORIE S. EBY, *Secretary*

---

LYDIA LEE, *Editor*

WILLIAM A. HEFLIN, *Research Analyst*

# CONTENTS

	Page
Testimony of—	
Batt, William L., Deputy Director, Division of Production, Office of Production Management.....	713-747
Cliffe, Frank B., Priorities Division, Office of Production Manage- ment.....	764-782
Davis, Arthur V., chairman of the board, Aluminum Co. of America, Pittsburgh, Pa.....	940-946
Davis, Edward K., president, Aluminium, Ltd., Montreal, Canada.....	928-936
Folsom, M. B., treasurer, Eastman Kodak Co., Rochester, N. Y., formerly with National Defense Advisory Commission.....	824-833
Gaudy, R. Jarvis, president, Standard Aluminum & Alloy Co.....	871-875
Gibbons, G. R., senior vice president, Aluminum Co. of America.....	782-824
Holden, Grenville R., consultant on aluminum and magnesium, Office of Production Management.....	835-864
Ickes, Hon. Harold L., Secretary of the Interior.....	877-894
Krug, J. A., manager of power, Tennessee Valley Authority.....	936-940
Olds, Leland, chairman, Federal Power Commission, Washington, D. C.....	864-871
Reynolds, Richard S., president, Reynolds Metals Co., Richmond, Va.....	749-764
Wilson, I. W., vice president in charge of operations, Aluminum Co. of America, Pittsburgh, Pa.....	894-928
Ingersoll, F. B., counsel, Aluminum Co. of America, Pittsburgh, Pa.....	894
Shortage of aluminum.....	713
Processing of aluminum from bauxite.....	717
Importance of magnesium in defense matériel and its use in aluminum alloy.....	720
Production, use, and cost of aluminum.....	723
Need for letting contracts to small business.....	730
Raising of age limits for skilled workers.....	731
Production of aluminum.....	734
Indictment in magnesium trust suit brought by Department of Justice.....	736
Aluminum reserves.....	738
Power rates in aluminum production.....	741
Shortage of aluminum and bauxite stocks in America.....	749
Priorities on aluminum.....	755
Members of Priorities Committee and their industrial connections.....	771
Allocation of aluminum under priorities system.....	773
Production by Aluminum Co. of America.....	783
Bauxite stocks.....	786, 797
Hydroelectric power used in production of aluminum.....	791, 802
Fontana, N. C., power project contemplated by Aluminum Co. of America.....	803
Estimates of demand, and production by the Aluminum Co. of America.....	812
Outline of position of Office of Production Management as to aluminum estimates.....	824
Estimates of demand for aluminum by Office of Production Management.....	836
Unwillingness of Aluminum Co. of America to continue Fontana hydroelec- tric project with its own capital.....	843
Question of Mr. Holden's opinion as to Aluminum Co. of America being only "dependable" producer of aluminum.....	848
Sources of technical knowledge used by Office of Production Management.....	853
Question of amount of organization necessary to produce aluminum.....	857
Senator Mead's statement as to necessity of encouraging competitive pro- duction of aluminum.....	861
Interest of Federal Power Commission in relationship between power and aluminum.....	864

Effect of Federal licensing requirements on Alcoa's projected Fontana power development.....	Page 865
Necessity of developing water-power projects to meet defense needs.....	868
Standard Aluminum & Alloy Co.'s plan for making aluminum from low-grade bauxite with natural gas for power.....	872
Need for ample supply of water power for production of aluminum.....	877
Question of failure of Aluminum Co. of America to furnish information requested by committee.....	895
Statement by Aluminum Co. of America.....	900
Fontana, N. C., power project of Aluminum Co. of America.....	908
Earnings and costs of Aluminum Co. of America.....	922
Aluminum production in Canada and other foreign countries.....	928
Corporate structure of Aluminium, Ltd.....	932
Tennessee Valley Authority's views regarding Fontana project.....	937
Conditions incident to additional production by Aluminum Co. of America.....	940
Negotiations preceding appointment of Aluminum and Magnesium Priorities Committee in Office of Production Management.....	943
Schedule and summary of exhibits.....	v
Monday, May 12, 1941.....	713
Wednesday, May 14, 1941.....	749
Thursday, May 15, 1941.....	835
Monday, June 16, 1941.....	877
Tuesday, June 17, 1941.....	899
Appendix.....	947
Supplemental data.....	966
Index <sup>1</sup> .....	i

<sup>1</sup> Corporate and individual names incomplete in the text appear in full in the index—Ed

# SCHEDULE OF EXHIBITS

Number and summary of exhibits	Introduced at page	Appears on page
53. Memorandum, dated April 21, 1941, prepared for Senator Mon C. Wallgren by Mr. Frank B. Cliffe, consultant on magnesium and aluminum, Office of Production Management, on the production of magnesium.....	736	735
54. Memorandum, prepared in the office of Senator Mon C. Wallgren, from a copy of the indictment in the Department of Justice magnesium trust suit ( <i>United States of America v. The Aluminum Co. of America et al.</i> in the District Court of the United States for the Southern District of New York, No. 109-189 (Criminal)).....	738	736
55. Letter, dated May 12, 1941, from Richard S. Reynolds, president, Reynolds Metals Co., to A. I. Henderson, Deputy Chief, Materials Branch, Production Division, Office of Production Management, regarding the part to be played by Reynolds Metals in increased production of aluminum.....	763	947
56. Letter, dated Feb. 21, 1941, from Oscar R. Ewing, of counsel for Aluminum Co. of America, to Leland Olds, Chairman, Federal Power Commission, submitting copies of withdrawal of intention of construction by the Aluminum Co. of America of a hydroelectric project at Fontana, N. C.....	806	948
57. Report, prepared by R. Jarvis Gaudy, president, Standard Aluminum & Alloy Co., directed to Senator Joseph C. O'Mahoney, chairman, Temporary National Economic Parts Committee, forecasting a shortage in aluminum.....	874	(1)
58-82. Included in Hearings, Parts 4 and 5.		
83. Group of communications from spokesmen of the Tennessee Valley Authority to officials of the Aluminum Co. of America and the Office of Production Management regarding increased demands for aluminum production and the resulting necessity for hydroelectric power to achieve that production.....	938	948
SUPPLEMENTAL DATA		
Unnumbered. Pamphlet submitted, subsequent to his appearance before the committee, by R. J. Gaudy, president, Standard Aluminum & Alloy Co., entitled "Aluminum and National Defense".....		966
Unnumbered. Documents submitted, subsequent to his appearance before the committee, at the request of members of the committee, by Frank B. Cliffe:		
Exhibit A. Details of reduction in aluminum used for civilian purposes by Reynolds Metals Co. and Aluminum Co. of America.....	}	970
Exhibit B. Chronological report on organization of Aluminum and Magnesium Priorities Committee.....		
Exhibit C. Extracts from minutes of meetings of Aluminum and Magnesium Priorities Committee concerning civilian priority classifications.....		
Unnumbered. List of persons, including \$1 per year men and those working without compensation, holding responsible positions in the Office of Production Management.....		976
Unnumbered. Memorandum submitted, subsequent to his appearance before the committee, at the request of members of the committee, by Grenville R. Holden, in regard to the negotiations with the Swiss Aluminum Co. of Lausanna.....		987

<sup>1</sup> On file with the committee.



Digitized by the Internet Archive  
in 2011 with funding from  
Boston Public Library



# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

MONDAY, MAY 12, 1941

UNITED STATES SENATE,  
SPECIAL COMMITTEE INVESTIGATING  
THE NATIONAL-DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:30 a. m., pursuant to adjournment on Thursday, May 8, 1941, in room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Mon C. Wallgren, James M. Mead, and Joseph H. Ball.

Present also: Hugh A. Fulton, chief counsel; Charles P. Clark, associate chief counsel.

The CHAIRMAN. The committee will come to order.

Mr. Batt, will you state for the benefit of the reporter your name and connections?

## TESTIMONY OF WILLIAM L. BATT, DEPUTY DIRECTOR, DIVISION OF PRODUCTION, OFFICE OF PRODUCTION MANAGEMENT

Mr. BATT. William L. Batt, Deputy Director of the Division of Production of O. P. M.

### SHORTAGE OF ALUMINUM

The CHAIRMAN. Mr. Batt, aluminum constitutes between 54 and 80 percent of the weight of airplanes, including the motors, and a much greater percentage when you exclude the motors. Last fall, after consulting the Aluminum Co., the Advisory Commission stated supplies of aluminum would be available for military requirements and civilian use, and now we are informed that there is a shortage.

Mr. BATT. Senator, I would like to talk to you, if I may, as informally as I can about this picture, so you will see it as we see it.

We came down here about June of last year and found a production capacity of aluminum of about 30,000,000 pounds a month. It was impossible to get detailed estimates from the services as to how much aluminum they would require for aircraft manufacture for a variety of reasons. In the first place, their program had expanded overnight at a tremendous rate, many of the designs were still on the drawing board, bills of materials weren't available, and so the Defense Commission had to estimate as well as it could how much aluminum would be likely to be required. We estimated at that time that the requirements for May of 1941 would be about 50,000,000 pounds a month, and that was made up roughly of half military and half civilian.

In this May, actually, instead of the military requirement being 25,000,000 pounds a month, the requirements of the military are about 50,000,000 pounds.

The CHAIRMAN. The requirements of the military are greater than the estimates for the military and civilian supplies to begin with?

Mr. BATT. Actually just about the same, just a little bit greater.

The aircraft that we had estimated for May of 1941 at 17,000,000 is actually specified for May of this year at about 27,000,000. Other military that we had put in, about 8,000,000, is about 24,000,000 pounds. That makes, as you said, 51 or 52 million pounds.

The reason for that estimate being as far off as it was is not easy to find, and we have been trying very hard to decide, as a basis for future policy, how those estimates went haywire.

In the first place this was a new industry. In the spring of last year, if my memory serves me correctly, before the appropriation bills in the early summer, Congress provided—and I think it was all the Army asked for—somewhere in the neighborhood of 90 tactical planes for 1941 to be built. What aircraft industry we had was very largely building goods for England and France. Models of planes were changing rapidly because the war experience abroad was indicating the need for heavier and heavier planes with larger and larger armament. So when we were estimating manufacturing requirements we had to assume how far ahead the aircraft companies would need to have aluminum in advance of the date of the finished plane.

We assumed that if they had aluminum 2 months ahead of the date of the manufacture of a finished plane that would probably be all right, because that was a reasonable expectation of ordinary manufacture in the industry. But that was a poor estimate, because this was a new industry, the organizations were expanding overnight, as all of you gentlemen very well understand; it was difficult for them to get good planning, and the result was that they were very soon asking for aluminum 10 months ahead of the date of the unfinished plane, instead of 2 months. And that is the principal reason for the fact that our estimates of aluminum for aircraft proved too low.

In connection with other military, whereas I said we had estimated 8,000,000 for May of this year and it is actually nearer 25,000,000, well, that is just a case of bad guessing on our part. The services were unable to make any guess, and we made the best guess we could.

Aluminum has gone into things we had no expectation of at all—pots and pans for the enormously expanded Army, aluminum wire instead of copper wire; the Navy's needs, of course, have grown far past that which they were assumed to be at that time, and it was simply a case where hindsight is better than foresight.

We believed in recommending that the industry should increase its production from 30,000,000 to 50,000,000, that we had taken a pretty sizeable step in that short period of time.

Of course, that wasn't the whole of the program that was provided, and during the end of the year we had arranged that production should go to about 65,000,000 pounds per month at the end of this year, and sixty-eight to seventy million pounds per month in the spring of 1942.

There were some temporary delays in the aircraft program, but I don't believe that they would have been prevented by any other steps that were taken. Those delays were largely due to fabrication. The



supply of ingot aluminum was adequate for military. The only place that there has been a difficulty that could have been avoided is in civilian demand.

We heard of delays in the aircraft program as a result of lack of aluminum, and when those were followed up we found in most cases that it was a question of forgings. Time hadn't been provided—enough time hadn't been provided—for making dies and tools to produce the forgings, or in other cases it might have been sheet for which enough manufacturing time had not been allowed, and that wasn't at all surprising. As I say, the industry had grown so fast that good planning was not to be expected. The suffering, such as there has been, has been in the civilian field, and I don't believe that any plan that would have been possible in the picture would have materially improved the aircraft picture, and, as I say again, aircraft production has not suffered noticeably for more than a week or two at a time for the lack of either sheet, or forgings, or extrusions, or castings.

Now, until the last few days, we were—let me say until the last few weeks we were—satisfied with a program which called for 845,000,000 pounds of aluminum a year as probably enough. But when the lease-lend bill was passed we, in discussion with the services, who by this time had got their own organizations pretty well perfected and were able to discuss comprehensibly with us what the needs are, had concluded that at least 200,000,000 pounds more of aluminum should be provided a year.

The CHAIRMAN. Does that mean that the civilians will have to do without aluminum entirely, if we get all we want for national defense?

Mr. BATT. It means, Senator, as far as I can see, for the next year, that there will be very little aluminum for civilian requirements.

The CHAIRMAN. It will all have to go into defense?

Mr. BATT. Most of it will have to go into defense. There is, of course, a secondary amount of so-called secondary aluminum, scrap aluminum, on which the civilian requirements have been pretty well existing for the last 3 or 4 months, and which they will have to continue to depend upon, but with the release of the new heavy-bomber program within the last week a wholly new face has been put on this aluminum picture.

The CHAIRMAN. Do we completely control the secondary sources of supply?

Mr. BATT. We have had a good deal of difficulty with it. The Priorities Division has been attempting, through one machinery and another, to get secondary aluminum back into the market, and I think the situation is improving, but it isn't entirely satisfactory. Now I want to tell you about this heavy-bomber program. I have said that at the present time the aircraft requirements are in the neighborhood of 27,000,000 pounds a month. We estimate, with the services, that the peak of the heavy-bomber program will call for 900,000,000 pounds of aluminum per year. That is 75,000,000 pounds a month.

The other direct military services will call for another 300,000,000, making 1,200,000,000, or, roughly, 100,000,000 pounds a month. The total primary capacity in this country that has been provided up to the present time in the neighborhood of 70,000,000 pounds a month,

so some time in 1942 we will have, according to our calculations, and in this conclusion the services join, enough aluminum if all of the secondary comes back—it is easier to think of scrap as secondary, because that is what it is—into the market. If all the scrap comes back into the market we will have just enough aluminum for our aircraft and direct military requirements, and no aluminum for civilian.

Mr. FULTON. Or for indirect military?

Mr. BATT. Precisely.

The CHAIRMAN. Just enough for aircraft and direct military, and none for civilian use?

Mr. BATT. That is right.

Mr. FULTON. That would be assuming we do get on schedule the aluminum from Canada that has only just been agreed to be furnished?

Mr. BATT. That is right.

Mr. FULTON. And also that all other plans for production as now made go ahead as planned.

Mr. BATT. That is right. Fortunately, they are a little ahead of schedule, I am informed—perhaps 30 days. There have been some delays at some points. The plant of the Aluminum Corporation at Massena, for example, has had difficulty in getting power from Canada, and that production has not been up to expectations, but it has been larger at other points, so the schedule is a little ahead of what was anticipated.

I think the difficulty, Senator, is one that doesn't apply to aluminum alone. All the way through I am convinced that our sights haven't been high enough on this defense program, and I say "our sights"—I mean the sights of the Defense Commission, the public, and everybody else engaged with the defense program.

The CHAIRMAN. In other words, we are following a policy of being half asleep, instead of waking up to the situation as it is.

Mr. BATT. I don't want to make a defense speech, but I am convinced of the fact that we have been shooting too long at too small a target. If you take the percentage of national income the Germans are employing for national defense today, it is roughly 55 percent, and it has been 25 to 50 percent for the last 4 or 5 years; whereas we were spending 5 minutes a day out of an 8-hour day the Germans were spending 4 hours. We are up, today, perhaps to an hour a day out of an 8-hour day, 12½ percent of our national income. That has been very recently, and our sights all the way down the line have been too low.

Senator BALL. Are they high enough yet on this aluminum?

Mr. BATT. Yes; the last figure that we have agreed on within the last week, after the heavy bomber program had been decided, we decided to ask for another four hundred million. Whether that is high enough, sir, I don't know, because if the B-19, the Boeing bomber that has 60,000 to 80,000 pounds of aluminum in it, which you have seen in the papers is on the test plate now—twice as much aluminum as any plane so far built—should be the tactical weapon of the future, then you can be perfectly sure, and if you make it in the same quantities as you have the smaller machines, that the requirements for aluminum are going to be doubled, and I am not at all sure that our

sights are high enough, although at the moment it looks like a very difficult job to get the billion five or six hundred million, or the billion four hundred million total which we now plan for.

#### PROCESSING OF ALUMINUM FROM BAUXITE

The CHAIRMAN. Are there any reserves at all of aluminum, or were there any reserves?

Mr. BATT. Of course—shall I tell you how aluminum is made, as a layman and remembering that I am not an expert? When I came down here last June I knew as little as one can know about it.

Aluminum is made from bauxite.

The CHAIRMAN. And they get most of that from Dutch Guiana.

Mr. BATT. Most of it comes from Dutch Guiana. Bauxite looks like ordinary garden variety clay. In fact, I am told it takes an expert to tell the two apart. We have good deposits of bauxite in Arkansas, but not too large in volume. The estimate has been made that if we had to depend on the high-grade deposits in Arkansas entirely for our production it would last, at this present rate, or rather this anticipated rate, something less than 3 years.

And so, since we have been down here, we have encouraged the importation of as much bauxite from Dutch Guiana as possible, where there seem to be unlimited supplies, leaving the Arkansas supply as the last resort if shipping were interfered with and it could not be brought in from other parts of the world.

There are other materials in this country from which aluminum can be made, I am told, but the cost goes up very much higher and of course the capital requirement for production of aluminum would be correspondingly higher.

Senator WALLGREN. Are you speaking now of magnesium?

Mr. BATT. No, Senator; I am speaking only of aluminum for the moment.

Senator WALLGREN. I mean, when you say there are other materials from which aluminum can be made.

Mr. BATT. There are low-grade clays from which aluminum can be made. There is no relation between aluminum and magnesium in production.

Senator WALLGREN. It is an alloy. Magnesium is much lighter than aluminum. Magnesium is used today in the manufacture of German planes, is it not?

Mr. BATT. I hoped you would ask me that question because I assumed, always, that the Germans used more magnesium per plane than we do. As a matter of fact, I am informed that they don't.

Senator WALLGREN. I am informed just the other way. Your information may be better than mine.

Mr. BATT. My information, which comes from as good authority as I know of, is that the latest German bombers which the British have dissected have shown 700 pounds of magnesium per plane, whereas some of our bombers use as much as 5,000 pounds of magnesium. Those are very heavy bombers.

Senator WALLGREN. We are using magnesium as an alloy in the manufacture of our aluminum?

Mr. BATT. Yes, sir. We are using it in aluminum in the sheet for wing structures—that is an alloy of aluminum—and many of our



struts and the reinforcing members on the inside of the frame are made up from magnesium castings or castings alloyed with magnesium.

Senator WALLGREN. There is a patented process for the development of magnesium, is there not?

Mr. BATT. I am told there is, Senator; but I don't know anything about it.

The CHAIRMAN. Well, the Germans made use of their low-grade bauxite deposits before they took the others by force, didn't they?

Mr. BATT. I suppose they did, Senator. I suppose they did. Mr. Fulton asked me a question the other day to which I thought an answer ought to be provided, and that was how much aluminum were the Germans using at the outbreak of the war per capita. Now, those figures show immediately that in 1938 the Germans were using more total aluminum, and, of course, much more per capita, than we were, because according to our Bureau of Mines Year Book, the last available figures in 1938, they had 161,000 metric tons as against our 130,000. But in 1938 they were producing aircraft at a rate probably in excess of the rate at which we are producing aircraft today, and we were producing a handful of planes in 1938, so I suspect that that is the entire answer. But I have to rely on figures for that conclusion.

Senator WALLGREN. Mr. Chairman, we kind of got off the track. The witness was to tell us how aluminum is made. I wanted to get off into the alloys of aluminum, where they are found, and so on.

The CHAIRMAN. Proceed with that.

Mr. BATT. We started with bauxite which, as I said, comes from Dutch Guiana and Arkansas, principally. That bauxite is brought up to this country and first is produced what the engineers call "alumina." Bauxite is a clay; it has to be washed, it has to be dried, sintered, treated with various processes, so that there is then produced a fine gray powder called alumina and, by the way, 4 tons of bauxite will produce 2 tons of alumina and 1 ton of aluminum.

Then, the next step from alumina to aluminum is an electrolytic process by which, with cells heated electrically, current in very large amounts flowing through those cells, the alumina is reduced to aluminum, and that takes a large amount of waterpower, a large amount of power. Waterpower has been used because it is cheaper. Actually, to produce 30,000,000 pounds of aluminum per year takes 32,500 kilowatts, and that is a very large power unit.

Senator WALLGREN. And that is being done in the Tennessee Valley and the Bonneville region?

Mr. BATT. Precisely.

One of the first things the Defense Commission did when it came down here and found that there was a necessity for an increase in production was to look at the available sources of waterpower and particularly those within a reasonable reach of the market, the point of consumption, and went before the Congress, as you gentlemen will remember, and asked for an increased appropriation for the T. V. A. so that their power could be enlarged and the Aluminum Corporation of America, which was the only source of supply, could have an opportunity quickly to enlarge its plants in that part of the country. That was done, about up to the limit of capacity.

I have here, which perhaps you are interested in seeing, a list of the various steps which this expansion has taken. This is the way it looked to us last November. Thirty million pounds had been provided from Bonneville, another 30,000,000 at the Alcoa plant down in the Tennessee Valley, another 14,600,000 at the so-called Baden plant, from Duke power; another 90,000,000-extension at Vancouver; the Massena plant—

Senator WALLGREN. What is that other 90,000,000-plant at Vancouver that you mentioned?

Mr. BATT. The first was 30,000,000, Senator.

Senator WALLGREN. That is Bonneville.

Is that the same company?

Mr. BATT. That is the same company; yes.

Senator WALLGREN. That's right; they enlarged their facilities there.

Mr. BATT. That is right.

The Massena<sup>1</sup> plant, with 46,000,000, which has never completely come in because of the difficulty of getting power from Canada. In this last—perhaps I had better finish this list and I will come back to that. Thirty million at Alcoa from the company's power, and two more 30,000,000-units at Alcoa from T. V. A. power. That represented the Aluminum Corporation's plant program, which would have provided, altogether, 756,000,000 pounds per year of aluminum.

Reynolds,<sup>2</sup> during the fall of last year, through a loan from R. F. C. made two programs for the production of aluminum, a small one in T. V. A. and another one at Bonneville, the total of those being 60,000,000, or a total of provided capacity of 825,000,000. Incidentally, I should say the Aluminum Co. has used its own funds for these expansions, of course making application for accelerated amortization.

Senator WALLGREN. The Aluminum Co. practically has a monopoly of aluminum?

Mr. BATT. Practically, yes; because up to the moment the Aluminum Co. is the only one actually producing aluminum.

Senator WALLGREN. The Reynolds Co. is not yet producing?

Mr. BATT. No; they have been buying aluminum from the Aluminum Co. They are now going into production; in fact, this month of May I think will be the first month of production for the Reynolds Co. They have done very well with their program.

Senator WALLGREN. That means they are going to get their own raw materials and process it from the raw material on?

Mr. BATT. Yes, sir.

Senator WALLGREN. How soon will it be before the Reynolds Co. can actually get into the manufacture of aluminum?

Mr. BATT. As I said to you a moment ago, their first production is expected to come in in May. It was promised for July and they are at least 30 days ahead of time. Their quantities will be increasing all during the year 1941. They ought to be in full production by the end of the year.

The CHAIRMAN. All this cheap power comes from water-power dams that have been constructed by the Government. Isn't that true?

<sup>1</sup> New York.

<sup>2</sup> Reynolds Metals Co.

Mr. BATT. Except those which the company has. When I spoke of the company's power, Senator, I presume they paid for those themselves. At least that is not Government-financed water power. The increases, amounting to 60,000,000, have been company's power. How much of their present, or what was at the beginning of the Defense Commission's work something about 400,000,000, capacity—how much of that was T. V. A. and how much company power I don't know.

Senator WALLGREN. Let's get back to the manufacture of aluminum again: Just exactly how it is made, what the alloys are.

Mr. BATT. Well, of course—

Senator WALLGREN. You have now reached the point where you have manufactured this gray powder called alumina, and that is distributed to the various power plants to be made into aluminum ingots.

Mr. BATT. That is right.

Senator WALLGREN. Now let's go on from there.

Mr. BATT. Now, the aluminum ingot is fabricated; sometimes it is rolled, sometimes it is drawn, sometimes it is cast into the shape you want.

Senator WALLGREN. But when it comes out of there as aluminum it is pure aluminum?

Mr. BATT. It is pure aluminum, an element, as we call it technically, and the only alloy that is used for aluminum—as far as I know—is magnesium. At least that is the principal alloying element, and that is to make it harder, because magnesium, while lighter, is also much more brittle.

#### IMPORTANCE OF MAGNESIUM IN DEFENSE MATÉRIEL AND ITS USE IN ALUMINUM ALLOY

Senator WALLGREN. Now, let's go into this magnesium business a little bit. Where do we get it?

Mr. BATT. We get magnesium from salt water, oyster shells, and electric power.

Senator WALLGREN. There is, however, today in this country, other raw material?

Mr. BATT. I understand, Senator, that alunite is a source of production possibility for magnesium. I don't know that it has been used commercially in any considerable quantity.

Senator WALLGREN. But we have vast deposits of it all over the United States, especially throughout the West.

Mr. BATT. Yes; we have.

There is another process, and I am out of my depth very quickly on magnesium as to its chemical qualities—there is another process called the Permanente Process, a Scotch process, which the so-called Six Companies, which built Grand Coulee and perhaps others of the various western projects—the Kaiser people<sup>1</sup>—are using. We arranged with them last fall to go into magnesium production, and with them went to the R. F. C. and provided the necessary financing for that program. They will have approximately, if nothing happens to their program, they promise us, 24,000,000 pounds of magnesium a year, before the end of 1941.

Senator WALLGREN. Who controls the price of magnesium?

Mr. BATT. I don't know, Senator.

<sup>1</sup> This and subsequent references are to Henry J. Kaiser, of the Permanente Corporation.—ED.



Senator WALLGREN. The Dow Chemical Co. manufactures it?

Mr. BATT. Yes.

Senator WALLGREN. They were tied in with several other companies, in fact one German corporation, in an indictment recently.<sup>1</sup>

Mr. BATT. I heard that, Senator.

Senator WALLGREN. What is the price of aluminum?

Mr. BATT. Aluminum today is 17 cents a pound in ingot.

Senator WALLGREN. Do you happen to know the price of magnesium?

Mr. BATT. No; I don't.

Senator WALLGREN. I can guess at it. It is about 26 cents, because they have always kept it just about 50 percent higher, and controlled the price.

Mr. BATT. I have been asked that question before, Senator, in less formal places than this: "Why don't you do something about the price of aluminum?" and my answer was that with the very small staff we had and the great job before us, our job was to get out the raw materials that were needed, and if I had to get people with stripes to do it and they could do it better than anybody else, I would have got defense out that way.

Senator WALLGREN. My question isn't with the thought of any criticism; it is really to point out how a monopoly has controlled the price of aluminum and has controlled the price of magnesium, and the taxpayers in this country are going to pay for it through the nose when it comes to the manufacture of airplanes or anything from aluminum.

Now, manufacturers don't like the idea of using secondary aluminum, do they—plane manufacturers?

Mr. BATT. No; they can't use it for plane work. There are many things for which it is perfectly satisfactory, but it doesn't have quite the strength, and therefore in a plane, where so much depends on the strength of every single part, of course you don't want to use anything but the best; but for trays for refrigerators, for example, or anything of that kind, secondary aluminum is perfectly satisfactory.

Senator WALLGREN. Do you know of any reason why an American processing plant can't use a certain process for the manufacture of magnesium? Is there any reason?

Mr. BATT. None that I know, Senator. The air is as free as can be, so far as I know.

Senator WALLGREN. I have heard from time to time about running into a bottleneck in the manufacture of magnesium in this country, a sort of deadlock here, and it seems that there is something here that is holding back in this country the manufacture of aluminum.

Mr. BATT. Senator, I don't know anything about any deadlock.

Let me give you a few pictures on magnesium. I have to refer to these notes that I put down this morning before I came in. When we came in, Dow was producing 13,000,000 pounds per year. I remember very well going to the Air Corps and asking them why we weren't using more magnesium in aircraft.

<sup>1</sup> Returned January 30, 1941. *United States of America v. The Dow Chemical Co. et al.*, in the District Court of the United States for the Southern District of New York, No. 109—191 (Criminal).

Senator WALLGREN. I want to ask another question there. What is the percentage of magnesium that goes into aluminum?

Mr. BATT. That would depend entirely on the part, and I am not sure enough of my information. I have the notion that it is a maximum of 4 percent, Senator, but let me verify that. I know it isn't more than that.

Senator WALLGREN. At that rate, then, there is plenty of magnesium?

Mr. BATT. If you had only to consider the aircraft, there is plenty of magnesium, but that is not the whole problem.

Senator WALLGREN. Yet I understand magnesium is stiffer, it is stronger, and it is lighter.

Mr. BATT. And it is more brittle and it is not nearly so tough. The qualities tend to offset each other, and that is why it makes such an excellent alloying material with the softer aluminum. You just put enough of it with the aluminum—

Senator WALLGREN. There wouldn't be any special advantage in using a greater percentage of magnesium?

Mr. BATT. You couldn't, with safety.

Senator WALLGREN. I am just curious. Yet it is an important alloy?

Mr. BATT. It is an important alloy. It is important for aircraft; it is much more important, I think, for flares and incendiary bombs, and that, of course, is the element that is tending to create the bottleneck, not aircraft production by itself.

May I give you quickly these figures: We had 13,000,000 pounds, we saw 13,000,000 pounds, per year when we came, and actually we could find no basis, from the services, for doing anything further in the increase of magnesium. The British had themselves provided some additional output. Altogether they had provided, or they had financed 15½ million. They had done it about the time we came down, so that that production wasn't coming in until a good while after that. It was they who put in the money for the Freeport, Tex., extension of the Dow Co.

Another 6,000,000 was provided for Freeport and we put in 18,000,000, or rather we arranged for 18,000,000 to be put in, so that before last fall the Defense Commission had added to what the British had provided, had arranged for, 52½ million pounds from Dow and 24,000,000 from the Kaiser people, making a total of 76½ million as against the 13,000,000 capacity which we found in this country in June, 3 or 4 months before.

We thought we would have magnesium enough to run out our flares, but the British, too, were learning a lesson as to the need for magnesium in flares and incendiary bombs, and their requests for additional magnesium were coming in almost by every mail, so that we could see this spring that that 76½ million would not be nearly enough, and we have already provided—at least, we have got the approval from Mr. Knudsen and we have talked with the companies—or the provisions are being made, for an additional 90,000,000, which will give us a resource of about 165,000,000.

Now, I am not sure that is enough. But I can assure you that there are no obstacles to our getting that 165,000,000, and that arrangement will be made by giving Dow a little more. The reason we



do that, Senator, is because they are the only ones that have made magnesium and we know they can deliver it.

Senator WALLGREN. Now then, according to your testimony, magnesium becomes a more important metal for flares and incendiary bombs than it does for planes.

Mr. BATT. I think I could say "more critical"; yes. I don't know whether I could say "more important."

Senator WALLGREN. I guess it is badly needed as an alloy.

Mr. BATT. It is as badly needed. Let's put it that way.

#### PRODUCTION, USE, AND COST OF ALUMINUM

Senator WALLGREN. You mentioned the price of aluminum was 17 cents a pound. That is the raw aluminum?

Mr. BATT. That is what we call ingot aluminum. It was 20 cents before we came down here, and after we came down it was reduced progressively from 19 to 18 to 17. The fabricated prices, of course, are higher (whether justifiably higher or not I don't know), but they should be higher.

The CHAIRMAN. We are told it costs about 10 cents a pound to make aluminum.

Mr. BATT. My friends in the Department of Justice told me the same thing, Senator. I don't know.

Senator WALLGREN. Of course, in an effort to protect the taxpayer it might be a little bit wise to consider the cost of distribution of all of this aluminum. I have pointed out, or brought up here some time ago when we were just discussing this slightly, the question of aluminum manufacture, that this bauxite was brought up, a great percentage of it, from Dutch Guiana, I think to Mobile, Ala., to be processed; then it is shipped all the way across the country (a big portion of it is shipped) to the Bonneville Dam, and there it is processed into aluminum ingots. Then it is picked up and shipped back all the way to New Kensington, Pa. That is their principal plant of fabrication.

Mr. BATT. You're right, sir.

Senator WALLGREN. Then it is picked up at New Kensington, Pa., and shipped—a great portion of it—to the west coast, where they are manufacturing planes—Lockheed, Douglas, Boeing, and I don't know how many other plants. When it comes back to the coast it comes back fabricated into the various parts, possibly the sheets of aluminum. All of this enters into the cost of production, of course, and the cost, eventually, has to be paid by the taxpayer.

Mr. BATT. Of course, Senator, may I take that—

Senator WALLGREN. This cost is all just loaded onto the back of the Government, is it not? I am just thinking that there must be a more economical method that we can employ.

Mr. BATT. I don't want to be put in the position of defending the Aluminum Corporation. Let's have that clearly understood. I want to give you the facts and let you draw your own conclusions.

The 17 cents was fixed by the Aluminum Corporation, and it hasn't been changed, before we went to Bonneville at all. I am sure they never would have gone to Bonneville for power if there had been more power in the Tennessee Valley, but there wasn't, and so they had the

alumina plant at Mobile, it was large enough, it was very easy to make any minor extensions that were necessary, and your alumina was provided in the necessary quantities.

Now, you couldn't get water power in the T. V. A., so we went to the only place that we could easily get water power, and that was Bonneville.

Senator WALLGREN. That is the cheaper power?

Mr. BATT. The cheaper power, precisely. If you had put steam power into the Tennessee Valley that would have been undesirable because our boiler plants were chockablock with Navy business and we couldn't have got steam plants in there for 2 years. We could get the water power right away. So it seemed the only thing to do was to go to Bonneville, and we recommended that.

Now, what were you going to do about your fabrication? Well, the Aluminum Corporation had this big plant at New Kensington for rolling. It wouldn't have paid to put up a plant at Bonneville for rolling the million pounds a year that was going to be produced, and so we did these haphazard things one at a time in the interest of speed, and all that time the price hadn't been changed.

Senator WALLGREN. The price on fabricated parts had?

Mr. BATT. I didn't know that.

Senator WALLGREN. I didn't know it, either. I would think it would. I don't see how you could go through all that transportation unless that cheap power would take care of it.

Mr. BATT. I will follow that up, but I think I would have heard it if the fabricated prices had been changed.

Senator WALLGREN. I am thinking that if I had been in business I would try to save a little money with a fabricating plant where I manufactured my metal.

Mr. BATT. If you were the Aluminum Corporation you might take it on the chin and like it.

Senator WALLGREN. We are thinking now about a long-range program, where we have to produce a great many pounds of aluminum to carry on here.

Mr. BATT. May I talk to you about that long-range program?

The CHAIRMAN. Before you go into that there are only two processing plants in the country outside the Reynolds plant, aren't there?

Senator WALLGREN. There are two large ones and several small ones.

Mr. BATT. You are speaking about alumina, Senator?

The CHAIRMAN. Yes; where they take the bauxite and make alumina out of it.

Mr. BATT. Yes.

The CHAIRMAN. If those two plants were destroyed, we would be in a very poor position, wouldn't we?

Mr. BATT. We would.

Senator MEAD. Before you go any further, you mentioned a moment ago about locating these plants because of the availability of immediate power. It is my understanding that a great deal of potential power is available at Niagara, if we can separate the necessary diversion of water, which could be done instantaneously by agreement between the two nations, from the St. Lawrence seaway program. The St. Lawrence seaway, of course, won't be ready for this war, but the diversion of power would instantly give us plenty of aluminum pro-

duction, in that we have an aluminum plant right there, we have the electrical facilities right there, and all we need is added diversion of water, and I understand if we can get the National Power Commission to separate that item from the seaway proposals we can have instantly a vastly greater volume of electric power, and with it more aluminum.

Mr. BATT. That is very interesting to know, Senator. I know that we have been very disappointed at what has seemed to us as a lack of comprehension on the part of the Canadians of our power needs for aluminum. They have another explanation for that, but we have been working for months trying to get increased power from them and haven't so far succeeded. Perhaps we haven't tried in the right way or with enough force.

Senator MEAD. I doubt very much whether the Canadians are altogether to blame for this situation. It occurs to me that the Federal Power Board, anxious for the progress of the seaway proposals, has tied several additional elements into the seaway proposals, one of which is this power-diversion program.

Now, the minute they let loose of that power-diversion program, we will have adequate power for the plants in that vicinity, but in the hopes of holding it back, tying it in, forcing the hand, they just won't let go.

Mr. BATT. I see. Well, I am glad to know that. I may be able to put it to some advantage, but maybe not.

Senator MEAD. I think you ought to explore that possibility.

Mr. BATT. I shall.

I said that we had, with the complete approval of the services, arranged for at least another 400,000,000 additional pounds of aluminum to be provided. It looks to me at the moment as if the most of that 400,000,000 is likely to have to come out of Bonneville and Grand Coulee. I am perfectly satisfied if that happens that way that there will have to be a fabrication plant put in out there, because as the Senator points out, you can't go on indefinitely training the stuff back and forth across the country wearing out freight cars, but since it would take a fairly long time, at least a year or a year and a quarter, to get this additional program under way at Bonneville, that would provide enough time to build such fabricating plant as will be necessary, the complete output of which could be used on the west coast.

But, of course, Senator, you know this bomber assembly is moving inland steadily. You are familiar, of course, with the four plants that have been provided, the four assembly plants, and that parts are being manufactured in Detroit and Cleveland by the body people in the automobile field, so that we will have a large consumption and final utilization of sheet in the Middle West before very long.

Senator WALLGREN. You still will have your plants on the west coast, though.

Mr. BATT. Yes, sir; that is what we would expect.

Senator WALLGREN. And their demand for aluminum will be considerable.

Mr. BATT. Yes; and that is what we would expect to provide entirely by this form of expansion that I just indicated on the west coast.



Senator WALLGREN. At the present time it looks to me like they use a great deal of aluminum in manufacturing planes out there.

Mr. BATT. They do, sir.

Senator WALLGREN. And all of it, every bit of it, is being fabricated some place in Pennsylvania.

Mr. BATT. That is right; you are quite right—because there have been no other facilities.

Senator WALLGREN. It isn't necessary to have just one fabricating plant to try to supply all of these plane factories.

Mr. BATT. When you have a demand large enough. But as small as our demand has been, and as tremendous as the output of one of these sheet mills is, one sheet mill of the existing capacity was adequate to take care of all we could see in this 800,000,000-pound annual capacity.

Senator WALLGREN. Are there any steps being taken now to construct a fabricating plant anywhere in the West to meet the needs of these airplane factories?

Mr. BATT. I just indicated that as a part of our program for the additional 400,000,000 which, having come about only in the last 10 days because of the President's heavy bomber program, is still on paper, that is definitely part of our program. I wanted to give you another—

Senator BALL. Will you try to get somebody besides the Aluminum Corporation in the business?

Mr. BATT. Reynolds. They are the only people that we know of.

Senator BALL. They are producing the aluminum. I was thinking of your rolling mill that you are going to build out there.

Mr. BATT. I haven't got that far. I don't know who ought best to put up that rolling mill.

Senator BALL. I think we should get somebody else in it.

Mr. BATT. As indicating the speed with which this situation changes, the Air Corps commented to me the other day that in October an officer was flying over a piece of field in Dallas, Tex., and the pilot said to him, "There is where we are going to have a bomber assembly." That was in October. And last week, or the week before, that bomber assembly plant was dedicated and the first planes were coming off. That was a matter of 6 months. You can't produce aluminum, if you haven't made the provisions for it already, in less than about a year, and so, when airplane manufacture can expand so rapidly, unless you have been far ahead on your provision you can't produce aluminum as fast as you can alumina.

The CHAIRMAN. The only thing we seem to have been ahead on is power plants. If we hadn't had Bonneville and the T. V. A., we would have been up against it.

Mr. BATT. I have damned T. V. A. upside down and backward in my private affairs and have been here and worked for them and thanked them for being in existence insofar as their supply of power is concerned.

Senator WALLGREN. If the Reynolds Co. produces in the T. V. A.—and they have a plant there, haven't they—

Mr. BATT. Yes, sir.

Senator WALLGREN. And produces at Bonneville, will the total production of the Aluminum Co. and the Reynolds Co. be sufficient for our needs?

Mr. BATT. I was asked that question a few moments ago in another way. Senator Truman, I think, asked me if I thought our sights were set high enough with 1,400,000,000, and my answer was that I didn't know, and I said that if the new B-19 bomber plane, which takes twice as much aluminum, 60,000 to 80,000 pounds in it, as any other bomber now made in the world, should become a current production problem in the quantities that we now require bombers, that we wouldn't have enough aluminum.

Senator WALLGREN. You said awhile ago, too, that we needed, maybe, 1,100,000,000 pounds of aluminum annually.

Mr. BATT. I said 1,200,000,000 for aircraft and direct military.

Senator WALLGREN. You don't know what the total output of these factories might be, the proposed output?

Mr. BATT. We are going to provide 1,400,000,000 on our present program.

Senator WALLGREN. You say "we." I am talking about Reynolds and the Aluminum Co. Can they provide that much aluminum?

Mr. BATT. Reynolds and Aluminum and perhaps the United States Government.

Senator WALLGREN. I see. If they don't provide it, then we are going to have a Government plant?

Mr. BATT. We are going to have aluminum, Senator, one way or the other, and if you were to have me on the stand 6 months from now I suspect that I would be talking in terms of much more than 1,400,000,000, but at the moment it is a fair thing to start on.

Senator WALLGREN. I hope we won't need that much.

Mr. BATT. I hope we don't need that much, but I don't know whether our sights are high enough. I think if I had to go one of two ways, they are probably too low.

Senator BALL. I was going to suggest that in view of the past deficiency of the estimates it might be a good idea to shoot at 2,000,000,000 pounds a year right now, and I was going to ask you whether we have available power enough, or power enough in sight, to produce two billion pounds a year.

Mr. BATT. I can't answer that question, but I can tell you that the 1,400,000,000 we have will take all the available power in Bonneville plus that which will have come in from Grand Coulee at that time. If we were to look forward another year past that when, as I understand it, further Grand Coulee power would be available, then undoubtedly we could produce more aluminum. I think we would have a hard time getting much more than one billion four, possibly one billion six, hundred million within the immediate time schedule.

Senator BALL. That is for '42?

Mr. BATT. That is for '42; yes, sir.

Senator BALL. One billion six hundred million?

Mr. BATT. Well, it is a billion four that we have provided.

Senator BALL. Then if you want to go higher you probably will have to investigate the possibility that Senator Mead calls to your attention.

Mr. BATT. That was very interesting, because I knew nothing of it.

Senator WALLGREN. Because the power is the first essential. You have to have that to make aluminum.

Mr. BATT. It is.

Senator BALL. How long does it take to build one of these plants where you go through this electrolyte process?

Mr. BATT. About a year.

Now, we have made a contract—and when I say “we,” Senators, it may be the Army or the Navy or the Defense Commission or the R. F. C.—

The CHAIRMAN. Speaking for the Government.

Mr. BATT. I am speaking for the Government; yes. The R. F. C. has made a contract with the Canadian Government which will enable them to enlarge their power capacity for an aluminum plant which they have up there, and which will give us 110,000,000 pounds during the period from the spring of 1942 to the spring of 1943. We have some hope that that might be slightly enlarged, but certainly for the following year we know it could be doubled. We haven't it in our schedule here. We call it an ace in the hole, because any number of things could happen to interfere with it. However, I have no doubt—I am sure the 110,000,000 will materialize, and perhaps greater amounts may.

In addition to that we have the tentative promise for more power from that water power when it is finished which, if that came about, would enlarge Massena's capacity. I mentioned we had difficulty in getting enough power for Massena.

Senator Truman, that is a roughly over-all picture of the aluminum situation as I see it, and I shall be very happy to implement this informal presentation in any way that you would like to have it, or fill in any gaps.

Senator WALLGREN. I would like to get down to the cost of fabricating aluminum, if it is possible. I know it is a long road, but I also know that \$100 invested in the Aluminum Co. of America along in 1904 is worth about \$8,760 today. I know there must be some profit some place.

Mr. BATT. It would look that way.

Senator WALLGREN. I wonder if that might not be a good thing for our Government to get in the manufacture of aluminum, unless we can buy fabricated aluminum parts at a much reduced price than we are paying for them today. When we start talking about a billion pounds of aluminum, at 17 cents a pound, we are not talking about what that fabricated aluminum costs and what it is costing the Government. We have no figures as to the average cost per pound of fabricated aluminum, have we?

Mr. BATT. Would you like to have some figures, sir, on that? I am sure they can be provided.

Senator WALLGREN. We are sort of trying to find out what this thing is costing the Government. We are talking today about almost a raw material. When you stop to consider, as I understand it, some \$350,000 goes into an airplane before the motor is furnished—

Mr. BATT (interposing). Much more than that in some and less in others.

Senator WALLGREN. It just doesn't seem like chicken feed.

Mr. BATT. No; it isn't.

Senator WALLGREN. I am wondering if we are getting as much for our money as other nations are getting for their money when it comes to the matter of constructing war material.



Mr. BATT. May I answer that question merely as a curbstone opinion?

I asked one of four of the outstanding international authorities about that before I came down here, and he said that the airplane per pound of weight cost less in the United States than it did either in England or Italy where he had made studies very shortly before that. That was a gratifying surprise to me.

Senator WALLGREN. We have no way of checking that.

Mr. BATT. We haven't; no. We have with the British. It would be quite simple to find out what an airplane costs the British, but one would always have to think of it again in terms of the number of hours of labor, because the British labor will be earning 25 cents an hour whereas ours will be earning 75 cents or \$1 an hour, and a cost comparison of that kind of course could readily be misleading. What one really wants to know is how many hours of work go into the construction, into the fabrication, and how much you pay.

Senator WALLGREN. There are not a great many men employed at any of these processing plants that process alumina into aluminum.

Mr. BATT. I don't know.

Senator WALLGREN. That step can't be so terribly expensive, especially if you have your cheap power.

Mr. BATT. I don't know.

Senator WALLGREN. But I would like to know how much it is costing to fabricate aluminum and what we have to pay for the fabricated aluminum parts.

Mr. BATT. That is a question to which it is very easy to get an answer and I see that a note has been made.

Senator WALLGREN. There might be some average; you might be able to figure the price per pound of fabricated parts of aluminum, an average or something of that sort, and that would give us some idea.

Mr. BATT. The Government has had some figures (I don't know how representative they are) in connection with its suit against the Aluminum Corporation, but when one talks about cost I don't have to tell you, because I know you have studied the thing, costs are very misleading things unless one is sure he is talking about the same thing at all times, or is quite sure that he has in mind a definite picture when he says a thing costs so much.

Senator WALLGREN. Seventeen cents per pound of aluminum doesn't seem to be an excessive cost, but I am just wondering, as I say, what the total cost is of all these materials we have to use. If there is any possibility of the Government's erecting a plant that can do the job for less money, I think the Government ought to go ahead and do it.

Mr. BATT. I would very much doubt if it could. I haven't seen that the Government is likely to be a more efficient operator. If the profits are unreasonable, that is another matter.

Senator WALLGREN. Well, as I say, when you look at the value of their stock over a period of a few years it does look as if somebody has been paying for it, and I hope we are not being "taken to the cleaners" the same way the public has been.

Mr. BATT. I don't want to be in the position of defending anybody, but I think the same thing could be said about Ford, and I have

always been pretty well satisfied with the value you get in a Ford car.

Mr. FULTON. Isn't Ford operating on a completely diametrically opposite principle of large volume and small profit instead of small volume and large profit?

Mr. BATT. Yes; he is. I shouldn't have answered the question, Senator Truman, because I step into deep water, but I couldn't let it ride without some comment.

The CHAIRMAN. Sometimes the answers bring out some things that are absolutely essential for the welfare and well-being of the country.

#### NEED FOR LETTING CONTRACTS TO SMALL BUSINESS

Senator MEAD. In talking about the production of airplanes and reducing their cost, isn't there something in the story that we are producing 25 to 30 or 35 different types of planes, some of which haven't yet proved to all the authorities that they are the last word in fighting efficiency, and that by cutting down the number, reducing the necessity of numerous dies, tools, and assembly lines just as the automobile industry did years ago when it shook off 25 or 30 manufacturing firms and boiled down to a half a dozen or so, and then by reducing the number of models to those that had proved their fighting ability in the different categories, to popularize the subletting of parts to subcontractors, encouraging competition among them; and in that way we would get out a greater number and we would reduce the cost?

Mr. BATT. Senator, as to the first part, the Air Corps of course can answer that definitely and I have only general impressions. But as to the second part I would like to say something because that has been a very considerable part of the concern of the Defense Commission, this matter of breaking up these contracts, spreading them out, for two reasons: One, that there should be a better distribution of the demand for labor; and secondly, that we should get greater speed; and third, I should add, so many machine tools won't be required, of course, under that program.

Now, the Defense Commission has an organization called the Defense Contract Service<sup>1</sup> that sometime or another I am sure you will inquire about in connection with this because it is the mechanism which we have set up to try to subcontract this work, and it is being done to an increasing extent.

The CHAIRMAN. I might say for the benefit of the O. P. M. and everybody else that this committee is going into this machine-tool proposition and also into the subletting of contracts and taking care of little business. We will go into that very thoroughly before we get through with the investigation.

Senator MEAD. Sometimes from reading newspapers, as to the total number of bids that have been cleared or the total amount of money of contracts that have been cleared and let in 1 day by the Army and Navy, it looks as though you are just planking down on a great, big corporation like General Electric, that probably has seven or eight hundred million dollars worth of contracts, another one hundred or two hundred million dollars worth of contracts that they won't be able to get out until 1943. The authorities here can do a fine day's work

<sup>1</sup> See Hearings, Part 5, for testimony of Robert L. Mehornay, Chief, Defense Contract Service, Office of Production Management.



in getting rid of that appropriation that authorizes these contracts, and they are through, but when will the deliveries be made? What about all these other companies, these smaller manufacturers, these independent agencies that would like to get into this national-defense program?

It occurs to me that they would make progress more rapidly if they had a bits-and-pieces program, or an odds-and-ends program, like some of the foreign countries had, but it would take a little time. Probably they wouldn't establish the record they establish of getting rid of a billion dollars a day.

The CHAIRMAN. They would get more production.

Senator MEAD. They would get more production, they would get more goods, and there is a tremendous number of skilled mechanics that are tied to small enterprise that would become available if they could only get into this national-defense program, and I think the crux of the whole thing, so far as volume production is concerned, is in diffusing the contracts and stirring up this small-parts business.

Mr. BATT. So do I, Senator, for the long run, but at the beginning I think the procuring services did about what you or I would have done. They would buy proven management, and that is the one thing that is characteristic of this whole defense effort, that we are trying to get management.

Senator MEAD. I think that was a fine start until they reached a certain stage, but now to pile, pile, pile fabulous amounts, millions and millions upon an already overburdened industry, means no production so far as delivery is concerned, this year or next.

Mr. BATT. I think the services are fully aware of that today. I have seen a distinct change in their approach to the problem as conditions you point out have become obvious to them.

Senator MEAD. I discussed it with leading manufacturers in my State and leaders of the manufacturers' association in the Nation, and they told me they are not calling, as yet, into play the small independent manufacturer who would make a great contribution. They may be calling him in, but they are not calling him in keeping with his ability to perform.

Mr. BATT. I was interested to hear the other day that one of the new machine gun contracts will subcontract 160 out of 196 pieces in the gun.

Senator MEAD. That is a fine thing. It should be practiced by everybody connected with this defense program.

Mr. BATT. The thing that is going to force it now is that there aren't going to be machine tools for these people. It might even be that some kind of a premium for subcontracting would be a practicable thing to encourage.

Senator MEAD. I think reducing the models to those of proven efficiency, and setting up a research department for those that they feel might in the future be efficient, will help the airplane industry. I believe by diffusion of this work to a greater number, encouraging small enterprise to come in, we will make more instant deliveries.

#### RAISING OF AGE LIMITS FOR SKILLED WORKERS

Senator MEAD. Then I believe that O. P. M., or some agency of the Government, ought to tell them to take off these restrictions that

prevent the older skilled worker from finding a job. I understand that in southern California they raised the age limit about 10 years and found 100,000 additional skilled workers. I think if they eliminated age limits altogether in the United States and substituted reasonable physical examination there wouldn't be a shortage of skilled workers. There are any number of mechanics that are out of jobs.

Mr. BATT. I didn't know we had an age limit, Senator.

The CHAIRMAN. Most of them won't take a man over 40 years of age.

Mr. BATT. That is the general practice of industry, you didn't take a man over 40.

The CHAIRMAN. Don't say "didn't." You don't now. They don't even take night watchmen. Remington, Rand was building a plant at Lake City, and they fired the fellows, even night watchmen, over 40 years of age.

Senator MEAD. Some of the railroads have gotten down to 30 years. So that there is a very severe limitation still practiced in this country, a limitation that was copied by the State and Federal Governments in many instances, that denied an opportunity for a job to a man 40 years and over.

Mr. BATT. That is an involved subject, as you Senators realize much better than I do, but I should just comment that the time taken to train, the cost of providing social security, and the like, have generally made it more attractive when plenty of labor was available to go to the younger man than to the older man, but that is going to take care of itself. If you need a workman today, and you can't get one 35 or 40, you are going to take one at 50.

Senator MEAD. Not unless the personnel office is notified that a change in the policy has been adopted by the management, that isn't so.

Mr. BATT. That is right, sir, that will have to happen, and I think it is happening.

Senator MEAD. But I think that the O. P. M. or the President ought to step into the picture with all the emphasis and authority they have and ask that it be done universally and at once. We can't draw off the youth of America for selective service between the ages of 21 and 35 and for the other services, the regular service in the Army and Navy, and yet expect that we are going to continue this great national-defense program, relying entirely upon youth in those age categories.

Mr. BATT. That is right.

Senator MEAD. There should be a division. Every man in America who is capable of making a contribution to our national-defense program, no matter how old he is, ought to be given opportunity to do it.

And so I am talking about bottlenecks to one who I see is very sympathetic, and I make these suggestions, and I hope that you will take them back to your agency.

One is the possibility of added power at Niagara.

The second is the freezing of airplane models to those of proven fighting ability, leaving the development in another category where

we could take a little time for a fighter that might be good next year—I mean a fighting plane.

Then subletting contracts all along the line, encouraging competition in the subletting of contracts; the utilization of wasted, unused, plant space. In the city of Buffalo, as Mr. O'Brian<sup>1</sup> knows, we have the old Pierce-Arrow Motor Car Co. I am not interested in the use of that company, but that is just an illustration of the vast unused plant structures that are all over the United States.

Mr. BATT. Buildings galore, Senator.

Senator MEAD. Absolutely, and what are we doing? We are building bigger and better plants attached to plants that are already connected with some international or national industry, and allowing all these small idle plants to remain idle when they are ready to be recruited tomorrow for this defense industry.

And then the third is the utilization of the older skilled worker. I think we could make a fine contribution to the increased productivity of the Nation if we utilized our older workers, if we would utilize unused plants, and if we would try to get a mass-production formula in the building of battleships, of ships of all types, cargo ships of all types, and airplanes of all types, with the realization that this international situation is here now, and research work that will give us a contribution 5 years from now will be just too late.

Mr. BATT. May I say, Senator, on the utilization of idle plants, that that has been pretty well done. You take the tank program. Baldwin, American Locomotive, Pullman are all producing their tanks in their existing plants, to a very considerable extent with their existing machine tools. The Government did construct a special tank arsenal at Detroit under the management of the Chrysler Corporation. That wasn't a very large building, about 1,000 feet long and 200 feet wide.

The aircraft program has been utilizing many of the existing automobile companies in and around Detroit. I can't remember the names of the companies that have gone out of the automobile business and are now going into some part of the aircraft business because plants were available.

On that question of freezing models, I think you will be sufficiently interested in what I think the Air Corps will tell you, that it would be very worth while your asking them for more detailed analysis. I will stick my nose in the wringer if I go to discussing too many subjects.

Senator MEAD. I read a very interesting article on the question, by Vultee, I believe it was, and he agreed with the position that I have just stated.

Mr. BATT. We can do it, Senator, when we are out in the lead. We do it in the automotive industry because we write the automotive ticket for the world. The Germans can do it in the airplane industry because they are in the lead. We are catching up, but we have been trailing behind them in that.

Senator MEAD. We must make sure we are not making any mistake while we are still trailing. The Germans are producing, according to reports, a submarine a day. They are not very lasting,

<sup>1</sup> John Lord O'Brian, general counsel, Office of Production Management.



they tell me; they are not the finished article that our submarines are, but they are certainly going to be used in this war while some of the ships we are going to build probably won't be used until the next war; that is what I am getting at.

Take, for instance, that St. Lawrence power plant, if we may come back to that. It will be finished about 6 or 7 years from now. That certainly won't be interesting to those who are trying to do something in this crisis, while the water power at Niagara can produce electricity that will flow into the Aluminum Co. plant, and the chemical plants, and all the other industrial plants that are contributing to national defense, tomorrow, if they will only say the word. And so I say, let's give orders to do things that can be done now, and if it is something that is going to be done in 1950, well, that is tomorrow's business.

Senator WALLGREN. Mr. Chairman, are you anticipating any other witnesses on this aluminum business?

The CHAIRMAN. Yes.

#### PRODUCTION OF ALUMINUM

Senator BALL. Mr. Batt, can you tell me whether this process for making aluminum out of alumina is patented by the Aluminum Corporation?

Mr. BATT. I don't know, Senator. I wasn't under the impression that it is.

Senator BALL. I was wondering whether this Reynolds Co. that has gone into the field since the emergency is paying royalties.

Mr. BATT. I hadn't understood that they were.

Senator BALL. I was interested in your figures. You are aiming now at a program of 1,400,000,000 pounds of aluminum.

Mr. BATT. That is primary aluminum. It doesn't include secondary.

Senator BALL. It will take about 2,800,000 tons of bauxite, won't it?

Mr. BATT. If you multiply that number of pounds by four, you will get the number of pounds of bauxite. I can't do the ton calculation in my mind, Senator.

Senator BALL. Seven hundred thousand tons times four—2,800,000 tons of bauxite.

Mr. BATT. It sounds about like that.

Senator BALL. How much of that is going to be domestic production?

Mr. BATT. At the present time about 60 percent is coming in from Dutch Guiana and about 40 percent is domestic. We feel that just as long as shipping is available, that all possible bauxite ought to come from Dutch Guiana, for obvious reasons.

Senator BALL. Is there domestic production in sight if that shipping is ever cut off completely or seriously curtailed?

Mr. BATT. There is enough of what we call the high-grade bauxite for about 3 years, at the present rate. It would be somewhat less at this higher rate. There is a great deal of low-grade material which could be used at higher cost. I don't know how much higher.

Senator BALL. Which would have to be used.

Mr. BATT. Which would have to be used, and which certainly the Germans are using.

Senator BALL. Are there any deposits in Canada or elsewhere on this hemisphere?

Mr. BATT. No; the Canadians get their requirements from Guiana also. At least we know of none in Canada.

Senator BALL. These plants that are now refining the high-grade ore I take it would very easily be converted and use the lower-grade ore; it would simply cost a little more.

Mr. BATT. You are out of my depth, Senator.

Senator BALL. You don't have to build a new plant. What I am getting at is, are we preparing against the contingency that we may have to use these tremendous reserves of low-grade ore?

Mr. BATT. That is a question on which I am not fully prepared. I wouldn't particularly worry about it. I would think when our shipping from Guiana was interrupted, that at that moment we would have to begin to think about the further utilization of low-grade ore.

Senator BALL. I don't think we ought to wait until that point.

Mr. BATT. I think you have raised a good point.

Senator BALL. We ought to know the process of using these low-grade ores and have our plants we are building adapted to using it in that case.

Mr. BATT. You have sharpened my interest in that.

Senator BALL. There aren't deposits in South America that we know of?

Mr. BATT. Yes; I understand there are some. The Reynolds Co. have been exploring possibilities in Brazil, if I remember correctly. But obviously, the Guianas are easier to get at from a shipping point of view than South America.

The CHAIRMAN. Any other questions?

Senator WALLGREN. No; Mr. Chairman, but I have one or two things here I would like to read into the record at the right time on this magnesium.

The CHAIRMAN. We are going into that tomorrow.

Senator WALLGREN. I think the committee itself ought to know something about this indictment.

The CHAIRMAN. Put that in today.

Senator WALLGREN. First of all I have a memorandum on the production of magnesium dated April 21, 1941, prepared, at my request, by Mr. Frank B. Cliffe, the consultant on magnesium and aluminum in the Office of Production Management, which I shall read into the record (reading "Exhibit No. 53"):

The sole manufacturer of magnesium metal in commercial quantities in the United States, prior to 1940, was the Dow Chemical Co., of Midland, Mich.

During 1940 the British Government requested the Dow Chemical Co. to increase their manufacturing facilities at Midland, Mich., and to establish facilities at Freeport, Tex. The British Government made substantial payment to the Dow Chemical Co. for these additional facilities and in turn was to obtain designated amounts of magnesium from their output.

The second company to become active in the production of magnesium metal was the Permanante Corporation, organized by a group of engineers who have done much of the large construction work on the Pacific coast. Their plant is now being constructed and should be producing magnesium metal during the summer or early fall of this year.

Negotiations are now pending with other companies to provide additional manufacturing facilities.

(The memorandum referred to was marked "Exhibit No. 53" and appears in full on the preceding page.)

Senator WALLGREN. I merely wanted this letter read into the record because it comes from the Navy Department and it touches rather pertinently on the magnesium production.

Mr. BATT. Did you feel, Senator, there was any contradiction in that with what I said?

Senator WALLGREN. No; that is merely a matter of record for the committee, to point out what the situation is in respect to magnesium. I merely wanted to read that letter into the record, that is all.

Mr. BATT. Because those were the figures which I attempted to give you.

#### INDICTMENT IN MAGNESIUM TRUST SUIT BROUGHT BY DEPARTMENT OF JUSTICE

Senator WALLGREN. I think the members of the committee ought to have this information regarding this indictment against, well, principally four companies charged with the conspiracy to create a monopoly.

I have here a memorandum, which was prepared in my office from a copy of the indictment in this case,<sup>1</sup> which I shall read. [Reading Exhibit No. 54:.]

The companies that were involved were the Aluminum Co. of America, one of the world's largest producers of aluminum alloys; the only producer of aluminum in the United States. They have several plants, including one at New Kensington, Pa., and one at Buffalo, N. Y.

Company B was the Dow Chemical Co., a Michigan corporation, the only producer of magnesium in the United States, and the second largest fabricator of magnesium in the United States.

Company C, the American Magnesium Corporation, Cleveland, Ohio, and Los Angeles, among other places, the largest fabricator of magnesium in the United States, jointly owned by the Aluminum Co. and General Aniline & Film Corporation.

Company D, I. G. Farben, a German corporation, one of the largest manufacturers of chemicals in the world, who manufacture magnesium, magnesium products, and aluminum alloys.

In 1932 the Aluminum Co. of America organized the Magnesium Development Corporation, which is also a defendant in this case, which is a patent-holding corporation and since 1932 jointly owned and controlled by I. G. Farben and Aluminum Co. of America.

*Magnesium.*—The sources of magnesium are earth and sea water. It is approximately one-third lighter than an equal volume of aluminum. And, by the act of June 7, 1939 (c. 190, 53 Stat. 811), it is a strategic material essential to national defense. All the magnesium now produced in the United States is produced by Dow Chemical Co. Most of it is obtained from brine wells in Michigan, although some of it is obtained from Gulf sea waters. Large quantities of this important metal are used in the manufacture of airplanes.

*Background of the conspiracy.*—In 1939 Germany produced 400 percent more magnesium than the United States. It was devoted to military purposes, for bombs and aircraft. That has been brought out here this morning.

The United States tariff was increased in 1922, thus cutting down the imports from Germany. I. G. Farben thereafter (in 1922) told the Aluminum Co. of America that Farben would go into competition with the United States and could, with their superior technology and patents, produce aluminum cheaper than the Aluminum Co. of America. So on March 4, 1927, the conspiracy in restraint of trade was formed, a restraint of both interstate and foreign trade.

*Purposes of the conspiracy (among others).*—A. To prevent any person other than Dow Chemical from producing magnesium.

<sup>1</sup> *United States of America v. The Aluminum Co. of America et al.*, in the District Court of the United States for the Southern District of New York, No. 109-189 (Criminal).



B. To limit the production and sale of magnesium products to the defendants and the defendants' sublicensees, and to eliminate competition among fabricators in the solicitation, obtaining, and retention of customers.

C. To control the price of magnesium and magnesium products and to prevent price competition.

D. To pool patents relating to the production of magnesium and fabrication of magnesium products in order to prevent competition and control prices.

*Methods used to effectuate the conspiracy.*—A. Cross-licensing of patents relating to fabrication of magnesium. The agreements are still in force and effect right now.

B. The American Magnesium Corporation stops producing magnesium and agrees to purchase from Dow Chemical.

C. The contract between Aluminum Co. of America and I. G. Farben—remember that is a German corporation [reading further]:

as of March 10, 1931, provides:

1. The two companies would form a third company (subsequently organized as the defendant M. D. C.) to be jointly controlled by them, and each company would be represented on the board of directors of M. D. C. by three of its six directors.

2. Each company would assign its then owned and subsequently acquired patents relating to the production and fabrication of magnesium to M. D. C., and these patents were to be used only in the United States.

3. M. D. C. would grant royalty-free fabrication licenses under all fabrication patents to Aluminum Co. of America and I. G. Farben.

4. No licenses were to be granted for the production of magnesium under any patents held by M. D. C. without the affirmative vote of a majority of all the directors of M. D. C.

5. Neither of the companies would engage in the production of magnesium in the United States without offering the other party an equal participation. In no event could the production exceed 4,000 tons yearly without the consent of I. G. Farben.

Again I remind the committee that is a German corporation [reading Exhibit 54]:

D. Pooling of patents.

1. Negotiations suspended and resumed.

2. The purpose was to prevent competition in production of magnesium and to control prices.

3. Contract formed on June 24, 1933.

E. Prevention of the use of other patented processes in the United States by misrepresenting the commercial value of such processes.

*Effects of the combination and conspiracy in restraint of trade (last 3 years).*—A. The defendants have directly, substantially, and unreasonably restrained interstate and foreign trade and commerce in the production and sale of magnesium and in the fabrication and sale of magnesium products.

B. There is only one producer of magnesium in the United States.

C. The price of magnesium in the United States has been maintained at artificially and unreasonably high levels.

D. The defendant, Dow Chemical, has sold magnesium without the United States at prices substantially lower than its prices to domestic users.

E. The development and use of magnesium and magnesium products on a large scale in aircraft and other industries has been restricted, retarded, and discouraged.

F. It has been necessary, in the present period of national emergency, to undertake the construction of additional plants for the production of the magnesium required by the national-defense program.

G. There now is a serious shortage of foundry facilities available for the fabrication of magnesium products necessary for the national defense, with the result that the production of aircraft and other material in which the use of magnesium products is necessary has been seriously impeded and delayed.

*Conspiracy to monopolize.*—A. The purposes are:

1. To prevent any person other than Dow Chemical from producing magnesium.

2. To limit the production and sale of fabricated magnesium products to the defendants and the defendants' sublicensees, and to eliminate competition among these fabricators in the solicitation, obtaining and retention of customers.

3. To pool competing patents relating to the production of magnesium and fabrication of magnesium products in order to prevent any persons other than defendants from producing magnesium, and defendants and their sublicensees from fabricating magnesium products.

B. Methods.

1. Cross-licensing of patents.

2. The American Magnesium Corporation to stop producing magnesium and buy from Dow Chemical.

3. A contract between I. G. Farben and Aluminum Company of America to form a third company, M. D. C.

4. Limited and controlled royalty-free sublicense.

*Effects of the monopoly.*—A. Dow Chemical is the sole producer of magnesium in the United States.

B. Dow Chemical and American Magnesium Corporation fabricate approximately two-thirds of the magnesium products sold in the United States.

C. Dow Chemical and American Magnesium Corporation have licensed only a limited number of other fabricators of magnesium, who sell one-third of the magnesium products sold in the United States, and completely dominate and control the fabrication of magnesium products by these fabricators.

D. The defendants have refused to license other prospective fabricators of magnesium products.

E. The defendants have excluded others from the production of magnesium in the United States.

F. The use and development of magnesium and fabricated magnesium in the United States have been restricted and stifled. In Germany over 400 percent more magnesium is produced for use than in the United States.

G. There is a scarcity of supply of magnesium.

H. Artificially and unreasonably high prices for magnesium and magnesium products have been charged and defendant Dow Chemical is enabled to sell magnesium in the United States for substantially higher prices than those charged and obtained by it in foreign countries.

I. There is a serious shortage of foundry facilities available for the fabrication of magnesium products necessary for the national defense.

J. Through abuses of the patent privilege, a framework of control has resulted, enabled the defendants completely to prevent potential producers and potential fabricators of magnesium from engaging in the production and fabrication of magnesium.

(The memorandum referred to was marked "Exhibit No. 54" and appears in full in the text on p. 736.)

The CHAIRMAN. Have you any other questions, Senator?

Senator WALLGREN. No.

The CHAIRMAN. Any questions?

#### ALUMINUM RESERVES

Mr. FULTON. Mr. Batt, with respect to this bauxite, as I understand it, there would be only about 2 years' supply at this increased rate in the United States.

Mr. BATT. Yes.

Mr. FULTON. And I wanted generally to ask you about the German bauxite. I understand it was a low-grade ore.

Mr. BATT. I don't know, Mr. Fulton, the last answer. The first one is right. I think I said there would be about 3 years' at the presently contemplated rate of production but at the increased rate obviously it would be reduced in proportion.

Mr. FULTON. At the 1,400,000,000-pound rate it would run 2,800,000 tons. Senator Ball estimated, and I believe the Bureau of Mines estimates only about 5,500,000 tons of high-grade ore in the country.



Mr. BATT. You have my memorandum on that, Mr. Fulton. Yes; the record says a recent survey indicates 9,000,000 tons of proved ore.

Mr. FULTON. I have their actual report as handed to me by you and I believe it is 8,700,000 of proved ore, but they say the reserves of aluminum grade, that is the high-grade ore are only 5,200,000.

Mr. BATT. Yes; I was coming to that. About 60 percent is of aluminum grade. In addition to the proved ore, the Bureau and the Geological Survey have estimated about 4,000,000 tons of probable and possible ore of commercial grade. Still further, about 24,000,000 tons of low-grade, not now commercially usable, but processes are known which can produce alumina from these ores at higher cost.

Mr. FULTON. I had in mind that I had been informed that aluminum is one of the most frequent elements that occurs in the world, and perhaps as much as 8 percent of the entire earth's crust would contain aluminum but it is a question of getting it out of the dirt and clay.

Mr. BATT. That is right.

Mr. FULTON. The Germans apparently had poorer bauxite than we had to start with. Isn't that relatively true of their bauxite deposits?

Mr. BATT. I can't say, Mr. Fulton.

Mr. FULTON. In any event, they did develop an aluminum industry which in Germany alone, excluding even Austria, was greater than our own.

Mr. BATT. Right.

Mr. FULTON. And has been for some years.

Mr. BATT. Right. You can always do it when you have to.

Mr. FULTON. And then in addition, Germany has since got very valuable high-grade bauxite deposits from France and Jugoslavia.

Mr. BATT. Norway, too.

Mr. FULTON. And Norway, so that these recent conquests, Greece and Jugoslavia, have at least added materially to their bauxite resources.

Mr. BATT. You are quite right.

Mr. FULTON. What I have in mind is, if we have so little and we will have to produce either from low-grade ore or will have to use shipping at a time when it is vitally important elsewhere to bring it in from the Guianas, isn't it desirable that we take some steps in the line of pilot plant tests on these low-grade ores immediately, or at least see that they are being made?

Mr. BATT. The Senator's question prompted my suggestion that that well warranted a line of inquiry. I can't say that such tests have not been made because I don't know, but I do agree that the matter ought carefully to be explored.

Mr. FULTON. I had in mind that I understood that the Aluminum Co. had investigated various processes over the years, and that they had come to conclusions of one kind or another with respect to each process, some of which conclusions apparently are not agreed upon by the Department of Justice. So it would appear, would it not, that the Government itself, being faced with the emergency that it is faced with, ought to conduct at least some pilot plant tests?

Mr. BATT. That is quite possible. You know the Defense Commission urged the Congress, and the Congress did approve the setting up of pilot plants for the investigation of beneficiation processes

for low-grade manganese, where we still are in no difficulty. Plenty of manganese is coming in but it was considered important to see what the possibility of the use of low-grade deposits in this country might be, and those plants are now being set up. The question interests me very much in connection with the low-grade bauxite. I simply know nothing about it.

Mr. FULTON. Such plants being pilot test and probably small capacity would not cost very many hundreds of thousands of dollars.

Mr. BATT. They shouldn't.

Mr. FULTON. And if you have a lag of over a year now on the plants that have already been commercially proven, it may well be we might have such a lag on any new process and time would be an important factor.

Mr. BATT. It might well be. I think the point is a good one.

Mr. FULTON. And would also provide, I assume, some check on the relative contentions of the Aluminum Co. and the Department of Justice with respect to the availability and the use of the existing processes, as to whether they actually are worth while and can be used.

Mr. BATT. But I simply rely on this sentence, "The processes are known which can produce aluminum from these ores at higher cost," without having any idea as to what the solution of the problem is.

Mr. FULTON. But I had in mind perhaps it would be desirable to find out how much that higher cost would be.

Mr. BATT. I fully agreed with you.

Mr. FULTON. And with respect to the civilian requirements, I assume they will be completely shut off and there will be no aluminum used at all in civilian requirements, because you cannot hope to meet the direct military unless that is done.

Mr. BATT. Mr. Fulton, that conclusion is one which obviously has presented itself only in the last week, since the new bomber program set up by the President has been evaluated in terms of aluminum. We have made no such public statement but as I give the committee the benefit of our latest thinking, it seems to me that is inevitable.

Mr. FULTON. And that of course is a complete reversal from the position of last fall, when it was said it was wishful thinking on the part of some that there was plenty of aluminum.

Mr. BATT. Absolutely. Could I find another word than "wishful thinking?" I was in that set-up, and I take my full share of the responsibility. I said our sights were set too low. I indicated that there were no figures available from the services as to what they were to require, and therefore the laymen from the outside did the best they could to estimate what would be needed, and that estimate was wrong.

Mr. FULTON. But I had in mind some of the press releases that were given out at that time.

Mr. BATT. Yes, absolutely. We called all the press men in and told them with a great deal of satisfaction, "The public doesn't have anything to worry about because there is going to be 25,000,000 pounds of aluminum for civilian requirements." We were wrong.

Mr. FULTON. I had in mind this. Was any method of any kind discussed as to getting reserves at the time? Did the Aluminum Co., for example, discuss getting in reserves of bauxite when shipping was relatively more free?

Mr. BATT. Yes, we urged them, and they did increase their bauxite supplies. How large they are, I can't say, but that matter was frequently discussed. It was discussed with the Reynolds Co. I think I am correct that the Reynolds Co. have enough bauxite to last them the year out now on this side. I am not familiar with the situation with the Aluminum Corporation, but then we both agreed that all possible bauxite ought to be brought in. That was frequently discussed during the fall.

Mr. FULTON. Could we have statistics at a later time, at your convenience, as to how far the Aluminum Co. did proceed in carrying out the agreement made with you to get in bauxite supplies?

Mr. BATT. Most certainly.

Mr. FULTON. And to the extent it is a relatively negligible reserve, the reasons why they failed to achieve that.

Mr. BATT. Right, you shall have that.

#### POWER RATES IN ALUMINUM PRODUCTION

Mr. FULTON. And then with respect to these kilowatt-hours, the thing that struck me was that it is somewhere around 10 or 12 kilowatt hours per pound.

Mr. BATT. It is 230,000 for 30,000,000 pounds annual capacity.

Mr. FULTON. But expressed in a manner that people more readily realize or understand, I understand it comes down to around 10 or 12 kilowatt-hours per pound of production.

Mr. BATT. Possibly. I hadn't calculated. It could readily be done. All you have to do is divide 30,000,000 by the number of hours in a year and get the amount of aluminum per hour.

Mr. FULTON. I would rather like to know the amount of kilowatts per hour.

Mr. BATT. At an opportunity I will give you more detailed figures on it.

Mr. FULTON. I believe the power rates at which that power is being sold is something like three and a half mills a kilowatt-hour?

Mr. BATT. I think sometimes less than that. For T. V. A. power I have carried in mind  $2\frac{1}{2}$  mills. I think I am right. Steam power, of course, will go up to six and a half, seven and a half, eight. There may be some waterpower three and a half, but I carry two and a half mills as my figure to try to remember.

Mr. FULTON. Anyhow, somewhere between two and a half and, say, even 4 mills, which is still a very, very low rate, even for industrial power. I had in mind this. Apparently the Government is furnishing at that low rate the power which has been produced, both at T. V. A. and at Bonneville, for the production of aluminum, and that is one of the most important elements in the cost of aluminum, is it not?

Mr. BATT. That is right.

Mr. FULTON. And, of course, the cost of developing the waterpower proportionately is much greater than the cost of building the plant for the actual reduction of the aluminum after you get the waterpower.

Mr. BATT. Yes.

Mr. FULTON. In other words, the Government in effect is furnishing—



Mr. BATT (interposing). Is it your conclusion it has helped to subsidize the low cost of aluminum? I don't know. From one point of view possibly, but I found the T. V. A. pretty good traders, and they made the contracts at two and a half mills with eyes wide open, about as hard people to negotiate with as anybody I know. They have got whatever they thought was a fair figure.

Mr. FULTON. What I meant to bring out, if it is true, is that the great bulk of the capital invested in producing the entire plant, considering the waterpower development as part of the plant, has been furnished by the Government.

Mr. BATT. That depends, Mr. Fulton, on whether the Government is selling power at a loss or not from T. V. A., doesn't it?

Mr. FULTON. It does, but whether it is at a loss or not, at least the Government is furnishing the capital, which is the great bulk of the capital in the industry as being expanded today. Isn't that true?

Mr. BATT. I am sure you will make a much more able argument than I, but I would assume that the capital cost ought to be amortized in the cost of the product, so that when the selling price of the product is fixed, as in this case at  $2\frac{1}{2}$  mills, it probably reflects the capital that has been in there. But that is again another subject with which I am not too familiar and about which I ought to say nothing.

The CHAIRMAN. And on which there has been an interminable argument and will continue to be.

Mr. BATT. All I can say to you is that I observe T. V. A. are perfectly capable of taking care of themselves in making a contract, and they have made these contracts at these prices, and, as far as I am concerned, they have to speak for themselves.

Mr. FULTON. Proceeding from there, we find with this very low electrical-rate prices, the additional cost of providing the actual additional manufacturing facilities is not too large.

Mr. BATT. I have never been able to get that figure to my complete satisfaction, and I never like to ask either one of the companies in the business for it. Some estimates I made indicated to me that the overall cost might be in the neighborhood of 50 cents to \$1 a pound capital cost for the production of aluminum.

Mr. FULTON. You mean the plant cost would be the equivalent of 50 cents on the annual capacity?

Mr. BATT. Fifty cents to \$1. That is a wide figure because I don't know how much to allow for the shipping necessary to bring bauxite here, and I don't know what the cost of the aluminum plants is. I think that is a figure that might readily be obtained.

Mr. FULTON. And where would that figure be obtained, the 50 cents to \$1 figure?

Mr. BATT. The only place I would go to get the information would be the Aluminum Co. They have all the answers.

Mr. FULTON. Did they furnish this 50 cents?

Mr. BATT. No; I pulled that out of figures I had, out of the amount of money they have spent for their development to date, from June of 1940 down to today. I had been told by the chairman of the board of the Aluminum Co. about how much he had committed himself for, and I knew how much aluminum was involved, and while I never asked him the cost per pound, I did some pencil calculations and assumed that probably it was 50 cents minimum. It might be \$1.



Mr. FULTON. And that was, of course, charging in any investment he made in, say, the development of water power?

Mr. BATT. Yes.

Mr. FULTON. So that when you are talking of the cost for the facilities exclusive of the water power, the average cost per pound might well be a quite different figure from that.

Mr. BATT. It might be, although I am not under the impression that they have made any considerable investment in additional water power expansion during the last year. But I am on thin ground so far as my knowledge is concerned. It is so sketchy that I oughtn't to pursue that any further.

Mr. FULTON. The thing I had in mind was that the general information seems to be that the cost of producing aluminum is less than 10 cents a pound. Is that in accordance with your information?

Mr. BATT. I have had more detailed information from the Department of Justice than any other agency of government. I carried 10 cents as the figure which they had pretty well fixed their minds on as the cost, but I was never able to decide exactly what that cost was as they saw it, whether that included the administrative and selling expenses of the business, or whether that was a so-called factory cost of aluminum—I just haven't had the time or the occasion to follow that thing through sufficiently to say myself whether the aluminum companies were making an unreasonable profit or not. I have no convictions on the matter.

Mr. FULTON. What I have in mind, there are no selling expenses any more, to sell it to the Government.

Mr. BATT. Yes; there are, Mr. Fulton; not selling expenses in the sense of salesmen, but I find it costs about as much to run the commercial end of a business today as it did in normal times. You spend it in a different way. For instance, the customer whom you had to work hard to sell originally because he was the buyer, today you have a hard time taking care of him, finding out just what he wants. You, perhaps, haven't got enough to supply him, so you spend more money with your sales department as a service agency than as a selling agency. So the expense is still there in running that business, I have no doubt.

Mr. FULTON. Assuming, however, it would be even the full amount, you would still have a 70-percent margin of profit on that 10-cent figure at the price of 17 cents, with, in effect, an unlimited market for everything you could produce.

Mr. BATT. That, of course, covers a pretty broad ground of assumption. If one assumes that the total cost, including administrative and selling and all operating expenses, is 10 cents, then, of course, as you say, 7 cents is net profit. I don't happen to know whether the 10 cents is a gross cost or net cost.

Mr. FULTON. I was not so much concerned as to whether the Department of Justice had it, but as to whether the O. P. M. was obtaining figures on which it could take whatever action it found to be advisable, because if there is a 70-percent margin of profit to the Aluminum Co. on production, the bulk of which is made possible by the use of Government-owned power at unusually low rates, there is a very substantial query as to whether the O. P. M. should not in-

sist either on the reduction in the price of aluminum or the Government ownership of one or more aluminum plants, both as a kind of test factor and as a factor for determining national needs, on the theory that there would be excess capacity anyhow and that there would be just as much justification for building an aluminum plant as there would be for building a tank plant, and especially an aluminum plant that might be using lower grade ore.

I wonder whether there has been any exploration at all of that subject?

Mr. BATT. Not of the cost phase of it. There have been of other phases of your question.

Mr. FULTON. In the last World War. I am informed, the price of aluminum doubled during the course of the war.

Mr. BATT. Yes; I think it did. If I remember correctly, it went into the thirties.

The CHAIRMAN. Thirty-three cents, to be exact.

Mr. FULTON. And even here, in some instances, forty and fifty for some limited quantities, but the bulk in the low thirties. At least we have done better in this case.

Mr. BATT. Yes; and we have felt that was some negative satisfaction, that the price had gone down. With the excellent cooperation which has existed between Leon Henderson, the price division and our division, we knew the price wasn't going to be up, and that is why I shall be surprised if I find, sir, that fabrication prices have gone up.

With the comparatively small organization we have in O. P. M., we haven't had the opportunity, indeed, since we place no contracts we haven't felt it to be our primary responsibility to make a study of the costs of all products going into national defense. You asked me whether we were concerned about whether this was too much money or too little money. Mr. Fulton, I think we have been concerned about getting enough aluminum, and as long as the price wasn't higher, we have just let that ride for somebody else to worry about. That may have been neglecting our duty, I don't know.

Mr. FULTON. But through your efforts and those of Mr. Henderson and his Division,<sup>1</sup> at least the price was brought down from twenty to seventeen, partly, I suppose, because the Aluminum Co. was willing to do that.

Mr. BATT. No threats were ever made to them so far as I know. So far as I know, they made those reductions of their own volition, but we were very happy to see them when they happened.

Mr. FULTON. Is there any particular explanation as to why they made them of their own volition in this war, whereas in the other the price doubled?

Mr. BATT. That is a guess that one man can make just as well as another, Mr. Fulton.

Senator WALLGREN. They certainly couldn't manufacture aluminum during the last war at power rates of 4 mills.

Mr. BATT. I think, Senator, that may be a reasonable answer. Power certainly went up during the last war and went up sharply.

Senator WALLGREN. They never have obtained power at such a low rate until we created these authorities: Tennessee Valley, Bonne-

<sup>1</sup> Leon Henderson, Administrator, Office of Price Administration and Civilian Supply.

ville, Coulee. There has never been power available at any time at such rates, and I think that is about the only answer we can have.

Mr. FULTON. Except I understand they produced power themselves. Have you any idea as to what their own power cost them?

Mr. BATT. No; I haven't.

Mr. FULTON. Have you ever asked them?

Mr. BATT. No; I don't think I have.

Mr. FULTON. Presumably if they were producing at a price around 10 cents with their own power, they ought to be able to produce at an even lower rate now, unless their cost of producing power was as low as Bonneville or T. V. A.

Mr. BATT. I really can't express an opinion on it. That is a rather involved question and I am not familiar enough with the whole problem to make it wise for me to attempt any part of an answer, because the whole philosophy of T. V. A. and private power was involved in that one question and books have been written about it.

The CHAIRMAN. And campaigns fought over it. Maybe the Aluminum Co. uses Commonwealth & Southern.

Mr. FULTON. On the figures you gave me as to world production, at any rate, it looked as though the Germans were not only ahead of us in aluminum, but that when you add the Austrian and French and other production of Europe to theirs, that they are at the present time far ahead of us, and with their increased bauxite resources, it will be difficult, if not impossible, for us to catch up.

Mr. BATT. Well, possibly. If you add the total of '35, '36, and '37, the German production is apparently about the same as ours. As you say, the Austrian is so little it really makes no great difference. However, of course, if you now give them the benefit, as you must, of French—

Mr. FULTON (interposing). Italian, Norwegian, Swiss.

Mr. BATT. Yes—you get a rather impressive total. However, I have no way of knowing what their total will look like—that is their own total plus the occupied countries—as compared with our own total, Canada and Great Britain, when this program is put into effect. I hope we are much above them.

Mr. FULTON. But at least we know that today we are much below them.

Mr. BATT. We know today we are apparently below them, you are entirely right, just as we are apparently below them in aircraft production and in a great bulk of defense material, far, far below them.

Senator WALLGREN. In other words, Germany has no worries so far as aluminum production is concerned but we do have.

Mr. BATT. We do have. Our worry is time. We will get it but we don't have it now, and there again I have to ask your indulgence to put on the record that they started this program in 1934, and we have just begun to start it in the summer of 1940.

The CHAIRMAN. We are about to make up our mind to start it.

Mr. BATT. Yes, sir. I think we began to start it then.

Mr. FULTON. Would you say they started their program a number of years ago?

Mr. BATT. I certainly should. I am satisfied that this increase on their part can have no other reason than the necessity for aircraft production.



Mr. FULTON. The interest I had in that, and particularly in the material Senator Wallgren put into the record, is that apparently they started their program and forced a rearrangement of world markets whereby they were permitted, with the full knowledge of the American producers, to produce more aluminum than America was; and in the case of magnesium, I noted that Senator Wallgren pointed out that we had even been under an agreement, which apparently our American companies had agreed to, that we wouldn't produce over 4,000 tons without the permission and consent of the German company.<sup>1</sup>

Mr. BATT. I never knew that.

Senator WALLGREN. That was brought out in those hearings.

Mr. BATT. Since the Defense Commission came down here in June and has had to concern itself, a mere handful of us, with some twenty-odd strategic materials, we get only a smattering knowledge of any one of them, so I know nothing of the background of aluminum over the world. As long as we got the aluminum, we haven't had time to worry about it.

Mr. FULTON. The matter, as I understood it, aggravated the price of magnesium and kept it at one-third greater than the price of aluminum, or approximately that; up as high as 27 cents a pound.

Mr. BATT. I have heard that.

Mr. FULTON. Whereas, as I understood from you, it is expected or hoped, at any rate, that it will be produced at a price of about 10 cents a pound or 12 cents a pound by the Kaiser people at the Bonneville project.

Mr. BATT. No, Mr. Fulton, I don't know that, and I certainly didn't say that.

Mr. FULTON. I thought you told me the price would be around 10 or 12 cents.

Mr. BATT. No; either I misunderstood your question or you misunderstood my answer. I have no indication what Kaiser is going to produce magnesium for at this process.

Mr. FULTON. I thought you said O. P. M. had assisted in getting financing from R. F. C., which means you would have to investigate it from an engineering standpoint to see whether it was a good loan or not, and the most important thing would be cost of production per pound.

Mr. BATT. We satisfied ourselves that the process was a tried process. We knew the record of that firm was an excellent record, and I am not at all sure that wasn't a reasonably normal commercial loan that R. F. C. made. It had our certification as to necessity. We simply told R. F. C. and nothing more than this, that we would like to see an additional 26,000,000 pounds of magnesium, and if they could find a means of financing that company to bring it about, we should be glad of the net result. We made no investigation of the credit standing or of the cost or anything else. R. F. C. made all of that, if it was made. We simply certified to the desire for the 26,000,000-pound annual production of magnesium.

<sup>1</sup> I. G. Farben, see Exhibit No. 54, supra, p. 736.



Mr. FULTON. Could you furnish us with as much of an estimate as you can, from whatever records you have, of what that cost would be?

Mr. BATT. We have no records, Mr. Fulton. If it is proper for me to do, anything I got would have to come from R. F. C. They have it.

Mr. FULTON. We can get it from R. F. C.

The CHAIRMAN. The committee will continue with the aluminum investigation on Wednesday at 10:30. We will probably have representatives of the Aluminum Co. of America and the Reynolds Co., and it may be necessary for you to come back, Mr. Batt.

Mr. BATT. I shall be glad to, Senator.

(Whereupon, at 12:35 p. m. the committee adjourned until Wednesday, May 14, 1941, at 10:30 a. m.)



# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

WEDNESDAY, MAY 14, 1941

UNITED STATES SENATE,  
SPECIAL COMMITTEE INVESTIGATING THE  
NATIONAL-DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:35 a. m., pursuant to adjournment on Monday, May 12, 1941, in room 318, Senate Office Building, Senator Harry S. Truman, chairman, presiding.

Present: Senators Harry S. Truman (chairman), James Mead, Ralph O. Brewster, and Joseph H. Ball.

Present also: Senator Lister Hill, Alabama; Hugh A. Fulton, chief counsel; Charles P. Clark, associate chief counsel.

The CHAIRMAN. The committee will come to order. Mr. Reynolds will be the first witness. Will you give the reporter your name and connections, Mr. Reynolds?

## TESTIMONY OF RICHARD S. REYNOLDS, PRESIDENT, REYNOLDS METALS CO., RICHMOND, VA.

Mr. REYNOLDS. Richard S. Reynolds, Richmond, Va.

The CHAIRMAN. And what is your business, Mr. Reynolds?

Mr. REYNOLDS. President of the Reynolds Metals Co.

The CHAIRMAN. Will you be seated?

We are interested in aluminum, Mr. Reynolds, and I have been informed that you can give us some information that will be of interest to this committee and to the country. I would appreciate it if you would give us a few facts in relation to the shortage, and what brought it about.

Mr. REYNOLDS. I have prepared a very short statement, and with your permission I would like to read it.

The CHAIRMAN. Proceed.

### SHORTAGE OF ALUMINUM AND BAUXITE STOCKS IN AMERICA

Mr. REYNOLDS. In the early summer of 1939 Mr. Phillippe Laval one of the officials of the French Aluminum Co.,<sup>1</sup> visited me in Virginia. I had become quite concerned over the knowledge that Germany was buying more bauxite from France than the French were reducing to aluminum metal, and I asked Mr. Laval in regard to this, and he said that Germany was short of brass and was using the excess aluminum for making things like window frames and door knobs. I stated to him at that time that I thought they were using it for airplanes and that France would later hear about it.

<sup>1</sup> L'Aluminium Francais.

He stated that France had trained an army for 20 straight years and that Germany had only trained an army for 6 years, and that they had nothing to fear from Germany. I was certainly not impressed; in the late spring of 1940—

The CHAIRMAN. We are being told some of the same things right now, I believe, by the same class of people.

Mr. REYNOLDS. In the late spring of 1940, when Germany invaded the Low Countries, I became very much concerned, as I felt that France would collapse.

On May 18, 1940, at the request of our new vice president, Caskie, I called on Senator Hill, member of the Senate Military Affairs Committee, whom I had understood had made a study of light metals. I had become convinced in my mind that this would be a light-metal war, and I had figured from my inadequate source of information that Germany, her allies and conquered territories, including France if conquered, could produce 1,000,000,000 pounds of aluminum, while the total production in the United States at that time was less than one-third of that amount.

Senator Hill asked me what could be done. I suggested that I might see Mr. Arthur Davis, chairman of the board of the Aluminum Co. of America, with whom I was well acquainted, and urge him to investigate this situation. I had an appointment with Mr. Davis very shortly thereafter in Washington and explained that I felt that Germany, her allies and conquered territories, including France, if conquered, could produce three times the aluminum that his company was producing in America, and I stated that I thought he should inform our Government of the true situation and not permit us to be caught in the same position as France. I urged him to ask for Government funds sufficient to enable his company to produce 1,000,000,000 pounds of aluminum with full protection to his company, that these emergency plants should be closed at the end of the emergency so as not to embarrass the Aluminum Co.

Mr. Davis expressed himself that he felt I was unnecessarily alarmed, and that he could not make this recommendation, stating that, in his opinion, there was ample aluminum and that there would be no shortage. I reported the result of this conference back to Senator Hill, who quickly turned and said, "Old fellow, what are you willing to do for your country?"

I said, "Senator, that is putting me on the spot. But we have 18 plants that are not mortgaged, and I will certainly recommend to our board that we mortgage these plants to secure funds for the production of aluminum ingot," hoping that by this action by our small company we might spur other large users, as well as the Aluminum Co., to quickly increase the production of this vital defense metal.

He immediately phoned Mr. Schram, chairman of the Reconstruction Finance Corporation, and asked that he see me. Mr. Schram immediately gave me an engagement. Mr. Caskie and I put the matter before him. He expressed himself that he thought the mortgages would make a basis of a good loan and he would like to go into it. The loan was tentatively approved within 30 days and was finally closed in August 1940, after such matters as bauxite, electric power and other operating details could be determined. The total loan at that time was fixed at \$15,800,000, with which we expected



to produce from sixty to eighty million pounds of aluminum ingot per year. This loan was later increased to \$20,000,000 and we hope it will be sufficient to produce 120,000,000 pounds of aluminum ingot. We are building 2 plants, 1 at Lister, Ala., and the other at Longview, Wash. We expect to produce 60,000,000 pounds of aluminum ingot at each location.

Since our comparatively small company was able, within 6 months, to build an alumina plant and two metal-reduction plants, it is evident in my mind that the production of aluminum ingots should not be allowed to embarrass or interfere with any possible requirements of defense. Aluminum ingot can be increased and multiplied as fast as aviation, automobile, and other defense contractors can expand their facilities. The aluminum industry should have, of course, the same length of time and the same assistance from the Government as other defense contractors.

I would like to call attention to two serious situations in connection with defense in the production of aluminum. There are two large and one small alumina plants in America, one at Mobile, Ala., one at East St. Louis, Mo., and our comparatively small plant that has just started operation this week at Lister, Ala.

The CHAIRMAN. Is there one in Arkansas?

Mr. REYNOLDS. No.

The CHAIRMAN. There used to be one in Arkansas.

Mr. REYNOLDS. It is at St. Louis. If either of the two large plants should be destroyed by accident or sabotage, it would dangerously interfere with and cripple our whole defense program. In my opinion, at least 10 standby alumina plants, Government owned, should be built at different locations, all well within the safety zone, and be held in readiness, with an ample supply of bauxite and other materials, so that they could be put into immediate operation if the regular production is interfered with.

The second situation which I would like to mention is the lack of large stocks of bauxite above ground in this country.

The CHAIRMAN. Is Arkansas the only source of supply in this country?

Mr. REYNOLDS. There are supplies being found, but we can't determine how much, in Alabama and Mississippi, but Arkansas is the State that has produced the bauxite. The point I make is that two-thirds of the bauxite that has been consumed has been imported. Bauxite is a cheap commodity. It stores the same as sand and gravel, and Germany, in its foresight, piled up immense stocks of it from abroad, and I think we should do the same thing, quickly, because if anything is interfered with, if more boats are sunk, it might cause disaster.

I want to say that at our Lister plant we have an estimate of a year or a year and a half's stock in our yard, but I still say that that is not ample. I presume the Aluminum Co. has large stocks also, which I can't answer for.

Senator HILL. Does bauxite deteriorate when it is stored this way?

Mr. REYNOLDS. It improves, so I am told by our experts.

The CHAIRMAN. It will keep indefinitely?

Mr. REYNOLDS. It improves with age, like most Senators I know.

Senator HILL. Senators and old wine.

Mr. REYNOLDS. And old wine.

Senator HILL. Mr. Reynolds, you spoke about mortgaging your plants to the R. F. C. The loan that you got when you built that plant there at Lister, Ala., you put up all your plants for security for, did you?

Mr. REYNOLDS. Yes, sir; and only five of which——

Senator HILL. In other words, you didn't get one of these present-day loans?

Mr. REYNOLDS. They were not on the market at that time.

Senator HILL. They were not on the market at that time? What you did, you practically mortgaged everything your company had.

Mr. REYNOLDS. Yes; and only five of those plants were concerned with the production of aluminum.

Senator HILL. You mortgaged a lot of plants that had no concern at all with aluminum, mortgaged everything your company had to go into the business?

Mr. REYNOLDS. You know Mr. Jones<sup>1</sup> as well as I do.

The CHAIRMAN. He still has that glass eye? [Laughter.]

Mr. REYNOLDS. I will tell you some day about the Oklahoma mortgage he asked me to sign.

Senator HILL. Mr. Reynolds, it is quite remarkable that you would be willing to do this. Nobody else had ever operated successfully in this country in the manufacture of aluminum ingots in competition with the Aluminum Co.

Mr. REYNOLDS. No. But I don't want credit for it. I think I had advance information, at least a year's running start, because Phillippe Laval and I were good friends, and I thought if he could miss his guess so widely, maybe Mr. Davis might miss his guess.

The CHAIRMAN. We have found that they all missed their guess by the difference between 25,000,000 and 1,400,000,000 pounds, and that is quite a wide margin.

Mr. REYNOLDS. I think I can explain it. We often make our mistakes in different viewpoints, and I want to say, and I am holding no defense for the Aluminum Co., of course, that they undoubtedly consulted with the War and Navy Departments as to the requirements of defense, and on that meager view no doubt there would have been ample aluminum for defense and civilian use.

The CHAIRMAN. If they had only needed 25,000,000 pounds it would have been ample.

Mr. REYNOLDS. I don't like to rehash the past or pick out mistakes, but the proper view would have been, how much can Germany, her allies, and conquered territories produce, because if you are going to stop power you have to have equal power to stop it.

Senator HILL. Maybe a little bit more power.

Mr. REYNOLDS. I would say 50 to 100 percent more.

The CHAIRMAN. Is aluminum the only metal on which this same underestimate has been made? How about the other necessary metals, like steel and iron?

Mr. REYNOLDS. I am not familiar with any other than tin, and, of course, ample protection was made by the Government storing large stocks of tin and ore in this country quickly. Of course, I hear a lot about magnesium, but I know nothing about it.

<sup>1</sup> Jesse Jones, Federal Loan Administrator.

Senator HILL. Mr. Reynolds, you speak of your loan from the R. F. C. When you decided to go into the manufacture of aluminum ingots, and to go into this business, did you get any encouragement from any other Government agency?

Mr. REYNOLDS. Senator, I am glad you brought that up, because at this point I do want to express openly our appreciation for the cooperation by Emil Schram, Chairman of R. F. C., and his able associates. Mr. Schram's great friend and big boss, Mr. Jesse Jones, was quite cooperative, and your office, and also Bonneville power, and Secretary Ickes were all most cooperative.

Senator HILL. Specifically, did you get any cooperation from the Defense Commission?

Mr. REYNOLDS. Well, I don't think this is the time and place to bring that up. I am sure that they were sincere in their opinion that there was ample aluminum, because they were basing their estimates on the then meager requirements of defense contracts. I think they are thoroughly aroused at the moment.

The CHAIRMAN. There is no doubt about that. They told us that, but it is a little late.

Senator HILL. They certainly weren't aroused at the time you went there and talked to them.

Mr. REYNOLDS. No; they really objected, because they said it wouldn't be needed, but I think it was based on their figures, and I think if you take their limited view it might have been a basis for a decision.

Senator HILL. Instead of the Defense Commission encouraging you they discouraged you, didn't they?

Mr. REYNOLDS. I would say yes.

Senator HILL. Mr. Reynolds, were you a customer of the Aluminum Co.?

Mr. REYNOLDS. Yes, sir; I started producing aluminum foil in, I think, 1924 and 1925.

Senator HILL. Were you one of the larger customers of the Aluminum Co., Mr. Reynolds?

Mr. REYNOLDS. We always liked to think of ourselves in that way. I really couldn't say, but we were one of their larger customers.

Senator HILL. One of their largest customers?

Mr. REYNOLDS. Yes.

Senator HILL. The Government had an antitrust suit with them which I believe was settled last August, August 1940—well, it wasn't settled, but it was submitted to the court.<sup>1</sup> It was concluded, so far as testimony was concerned.

Mr. FULTON. I think that is correct.

Senator HILL. Up to the time that that case was closed, so far as testimony was concerned, and submitted to the court, did you have any trouble getting aluminum?

Mr. REYNOLDS. No.

Senator HILL. You got all you wanted?

Mr. REYNOLDS. Yes; they were very cooperative.

<sup>1</sup> Equity No. 85-73, *United States of America v. The Aluminum Co. of America*, in the District Court of the United States for the Southern District of New York. No reported opinion had been handed down at the time of this publication.



Senator HILL. After that case was submitted and closed, so far as testimony was concerned, did you have any trouble then?

Mr. REYNOLDS. The situation was changed almost immediately.

Senator HILL. Changed almost immediately? Changed in what way?

Mr. REYNOLDS. Well, we at that time had placed firm orders for 31,000,000 pounds, and they began to cut our firm requisitions against those orders. In this way they cut our flow metal for civilian customers millions of pounds, and we couldn't get all of our supply from them.

Senator HILL. You couldn't get the supply?

Mr. REYNOLDS. We would get about 50 or 60 percent of what we needed, and therefore we had to use up our stocks of what I call flow metal. We carried normally, before we did anything for defense, about ten to thirteen millions of pounds as a flow metal for our five plants, and that is for civilian requirements.

Mr. FULTON. Will you tell us what you mean by flow metal?

Mr. REYNOLDS. It means metal that is necessary and required in the many different departments and operations of our business, including stocks that must be accumulated until they are sufficient for customers' orders.

Mr. FULTON. That would be the metal you have in process for fabrication, plus your inventories?

Mr. REYNOLDS. Yes; it is what you would figure that these plants should have, normally, so if there is any little interruption you don't have to stop your plants.

Mr. FULTON. Did you say you had 31,000,000 pounds ordered on firm orders that had been accepted by the Aluminum Co. for delivery?

Mr. REYNOLDS. Yes, sir; I so understood.

Mr. FULTON. At a period of time when releases were being given out by the Defense Council to the effect that there was no shortage?

Mr. REYNOLDS. Oh, yes; all that time it was appearing in the newspapers that there was no shortage either for defense or civilian.

Mr. FULTON. And I think the Aluminum Co. had had testimony to that effect introduced in the record in the Justice case.

Mr. REYNOLDS. Yes; I have heard the rumor, and I think I have read Mr. Wilson's testimony to that effect.

Mr. FULTON. That there was no shortage, there was none, and would be none for military and civilian?

Mr. REYNOLDS. So I understand. I don't like to be held to that, because I am speaking from memory, but certainly the Defense Commission made it clear in many, many newspaper releases that there would be no shortage for defense or civilian.

Mr. FULTON. I think as late as November 28 the release was publicly given out to the effect that "It appears adequate to take care of military requirements as now estimated, and present civilian requirements with a sufficient surplus to permit some increase in civilian requirements over the present level, or in military requirements, if needed." Is that in accordance with your recollection?

Mr. REYNOLDS. Yes, indeed.

Senator HILL. That was in November, now?

Mr. REYNOLDS. That was late in November.



Senator HILL. Yet in August, after this case was submitted, you were denied the supply which you had on order. Is that right?

Mr. REYNOLDS. A portion of it.

Senator HILL. A portion of it?

Mr. REYNOLDS. The thing is, I couldn't get from them how much we could expect. I even took it up with Mr. Davis,<sup>1</sup> and I can submit his letter in reply to my letter. His reply was also in November 1940, the same time that the releases were given out, in which he speaks of priority committees that are not yet formed; and yet public releases gave out directly opposite information, and indicated that priorities committees would never have to be formed.

Senator HILL. Well, now, after the R. F. C. announced the loan to you, which was pretty indicative of the fact that you were to build this plant to produce aluminum ingots, did that have any effect or did you notice any change so far as the supply of aluminum is concerned?

Mr. REYNOLDS. It just so happened about that time that with the men who had serviced our accounts for the Aluminum Co. for years, and who had been very cooperative we couldn't get anything definite from, and that is the reason I had to take it up with Mr. Davis himself, the chairman of the board. I think that human nature is human nature. They probably thought that I was going to become a competitor.

Senator HILL. You were going to become a competitor.

Mr. REYNOLDS. Absolutely; but I still had rights as a customer, because I had firm orders on file.

Senator HILL. You still had some rights as a customer, didn't you?

Mr. REYNOLDS. Yes, and by long standing.

Senator HILL. How long had you been doing business with them?

Mr. REYNOLDS. Fifteen years.

Senator HILL. And you had plants that were absolutely dependent on the supply from the Aluminum Co. for operation?

Mr. REYNOLDS. Yes, sir.

Senator HILL. And those plants were under mortgage to the Government through the R. F. C.; is that right?

Mr. REYNOLDS. Yes, sir.

#### PRIORITIES ON ALUMINUM

Senator HILL. Now, Mr. Reynolds, you spoke about the priorities. You are under a priorities system now, aren't you?

Mr. REYNOLDS. Yes, sir.

Senator HILL. How are you faring under that priorities system?

Mr. REYNOLDS. Well, Senator, not so good, because it happens that there is no one on the Priorities Committee that is familiar, really, with aluminum foils and aluminum powder, which is 95 percent of our civilian business on aluminum. There is no one on the Priorities Committee familiar with our particular type of aluminum business, and it has been practically closed.

Senator HILL. Well, now, a certain amount of aluminum goes to the automobile industry, doesn't it?

<sup>1</sup> Arthur V. Davis, chairman of the board, Aluminum Co. of America.

Mr. REYNOLDS. I think still; yes, some.

Senator HILL. Do you know, or can you tell us the relative amount that you are being permitted to get for domestic purposes? That is for your commercial plants.

Mr. REYNOLDS. You understand I am getting for defense all I want for defense.

Senator HILL. I understand.

Mr. REYNOLDS. Some of the foil and some of the powder is still recognized as for defense customers, but the others are put under a very low priority number, which means that they cannot continue to use our product. And one embarrassing feature to us is that after our flow metal for civilian had been reduced over a period of 6 months to an absolute minimum, the Priorities Committee issued a very strange order by allowing all fabricators, including the Aluminum Co., to use their flow metal as they pleased, regardless of priorities, and put us in shape where we had to decline orders to a lot of our customers because we didn't have flow metal. I figured roughly that the Aluminum Co. owed me about 11,000,000 pounds of flow metal, withheld since September, accumulated. If I had had that the customers that made possible the factories that made possible the mortgage could have been given ample time to have found substitutes, and one of the inducements of this mortgage was to protect the customers that made the factories possible. Unfortunately, even though I mortgaged the factories to increase the production of aluminum by 120,000,000 pounds I was embarrassed by the action of the Priorities Committee.

Now I want to make this statement, that I was one of many that should and could have produced aluminum. Some of the large users wouldn't have had to resort to mortgage, which my small company had to do, and there should have been no shortage, either for civilian or for defense. I have proved that you can build an aluminum plant and make aluminum in 6 months, and I did it without knowing a damned thing about it.

The CHAIRMAN. Somebody that was familiar with the construction and had been in the business could do it in much less time?

Mr. REYNOLDS. I wouldn't say that. I say they ought to. I know what we have done.

The CHAIRMAN. How long does it take to construct one of these alumina plants?

Mr. REYNOLDS. I would say, given priorities for the machines, we would have even beat this record except for strikes. We were held up for 4 or 5 weeks for some of our equipment for the alumina plant. I would say, given the priorities for machinery, we could do it in 6 months, and the Aluminum Co. could probably do it much faster with their greater organization.

The CHAIRMAN. It is a plant on the order of a cement plant, isn't it?

Mr. REYNOLDS. Yes, sir; the alumina plant is on the order of a cement plant. The metal reduction plants are more like electric foundries.

Senator HILL. Mr. Reynolds, I am interested in this priorities business. The Committee on Military Affairs, of which Senator Truman and I both happen to be members, are now considering a bill on this question of priorities. It has passed the House of Representatives and it is now before our committee. When I leave here I shall go to that

committee for the consideration of that bill. Senator Truman and I will have to pass on that bill as members of that committee as well as Members of the Senate.

Have you any further thought you might give us on priorities, any suggestions you might make?

Mr. REYNOLDS. Well, Senator, I am probably the wrong man to ask, because a few years before the last war I had resigned my position as vice president of the Reynolds Tobacco Co. and started in business for myself. I had a flourishing little business. Without notice my products were declared a nonessential and my factories were closed, when the same type of products of large companies continued to be shipped all during the war. That is why I have a complex against priorities committees composed of \$1 a year men.

The CHAIRMAN. Then how should a priority committee be composed?

Mr. REYNOLDS. It should be composed of absolutely disinterested men who are accustomed to getting the facts and judging them carefully, and who have no interest in or fear of companies they seek to regulate.

The CHAIRMAN. It ought to be on the basis of a court or Federal board?

Mr. REYNOLDS. A Federal board, with no hope of reward or fear of punishment from those whom they are seeking to regulate.

Senator HILL. Wouldn't you rather pay them a good salary than pay them a dollar a year?

Mr. REYNOLDS. I think it would save money. I think the dollar a year men ought to be paid a good salary or be put back in harness with their companies. I have been working 7 days a week for 14 months. I don't want a job up here.

The CHAIRMAN. You think a man is usually worthy of his hire, and if it is a dollar, that is what we get?

Mr. REYNOLDS. And I should say all manufacturers might do more at their old job and let men trained to do justice and gather facts rule us during this emergency.

Senator HILL. And when you come to select priorities boards, the boards that are going to have the say on this priority matter, certainly you ought not to have members on that board or those in authority with that board who might have some interest, directly or indirectly?

Mr. REYNOLDS. It doesn't mean that they are crooked.

Senator HILL. I understand. We are not accusing anybody of that.

Mr. REYNOLDS. They might only know one requirement, you see, and be totally unacquainted with the requirements, for instance, of the stuff we make.

Senator HILL. In other words, they might be doing their uttermost to be absolutely fair, and yet their knowledge might be such, or the limitations on their knowledge, or their lack of knowledge in some particulars might be such, that they couldn't be fair.

Mr. REYNOLDS. Suppose I was an automobile manufacturer. I would know the requirements of, say, aluminum in automobiles, and it would be the easiest thing in the world for me to say that that ought to have preference over the Hershey Chocolate Co., who make a very wonderful food for soldiers and children.



Senator HILL. In other words, if for 25 or 30 years you had lived day in and day out with the problems of the automobile——

Mr. REYNOLDS. Certainly.

Senator HILL. You would have been sold on the necessity for the automobile, and you naturally would be automobile-minded, wouldn't you?

Mr. REYNOLDS. That is one reason that I suggested that Mr. Murrie, of the Hershey Chocolate Co., should be on that committee, not to defend Reynolds Metals, because we have taken care of our company in the year before, but we had hoped to protect Hershey and other customers who made possible the factories that made possible the mortgages that made possible our voluntary efforts to increase the supply of aluminum, and to tell them why they used metal on chocolate and what chocolate does. I think it is a grand food. It gives energy.

Mr. FULTON. As a matter of fact, the priority set-up allows the automobile industry 60 percent of their 1940 requirements, even as expanded by their increased production.

Mr. REYNOLDS. That is my recollection; yes.

Mr. FULTON. Whereas on food they are allowed only 10 percent of their 1940 production.

Mr. REYNOLDS. That means they can't use it at all. Hershey can't use 10-percent metal and 90-percent imitations, and the unfortunate part of it all was that they were caught unawares and didn't have sufficient time to provide satisfactory substitutes.

Senator HILL. The substitutes?

Mr. REYNOLDS. That is true. I think that was a bad slip.

Senator HILL. Now, as I understand it, the automobile industry is being allowed 60 percent of its normal supply.

Mr. REYNOLDS. I would be only speaking from memory on that. You can get it. But I am saying this. I think the whole basis of priorities is to put it in the hands of men that have no hope of reward or fear of punishment from those that they are supervising, and I don't mean to say that they would be crooked, but I just say human nature is human nature. They know what they know.

The CHAIRMAN. We are not accusing anybody of being crooked. We are just accusing these people of having a complex which they can't overcome.

Mr. REYNOLDS. Senator, you have brought up a bad subject for me, because I was put out of business in the last war while my large competitors were protected on identical merchandise throughout the emergency.

The CHAIRMAN. We know that, and we thought you might be able to talk about it intelligently.

Mr. FULTON. Is there any other matter of priorities that you have noted as they relate, particularly, to aluminum?

Mr. REYNOLDS. Well, I have contended for this, that the Priorities Committee as set up were there for one purpose and one purpose only, and that was to secure for defense contractors sufficient aluminum for their requirements, and if there is anything left at all for civilians, it should be distributed back to all fabricators in proportion—and to their customers in proportion—and in the ratio of 1940, and let each fabricator visit his own customers and stretch what he has left to the



best possible advantage with the least injury to any, because nobody knows like the fabricator himself who has been serving his customers for many years.

I want to repeat that the job of the Priorities Committee was to get sufficient aluminum at all times for all defense contractors. If there is any left for civilians, it should be proportioned equitably among fabricators in proportion to their business in 1940, and in turn to its customers, or their customers, in the ratio of what their cut in civilian allotment has been.

Mr. FULTON. In other words, you would favor giving the defense contracts precedent to the extent of their needs?

Mr. REYNOLDS. Oh, yes; at all times, and I don't think that there is a customer in the United States that would object.

Mr. FULTON. But to do that by allocating it for the defense work instead of by allocating it to industries which are supposedly engaged largely in defense. To use an example, for example, steel, would you mean thereby to give the steel people enough for their defense work?

Mr. REYNOLDS. Only in their proportion of the aluminum for civilian use that all other users have.

Mr. FULTON. Well, in other words, instead of trying to divide the industries and classify them in accordance with whether they are defensively active or inactive, you would first say all defense work should have aluminum?

Mr. REYNOLDS. Absolutely.

Mr. FULTON. And then after that, instead of classifying the industries, you would say, since defense has been taken care of, all the industries for civilian needs should share and share alike.

Mr. REYNOLDS. Absolutely, that is the point I make, and that is the basis of the Board as now constituted. If you want to do the other, then it is extremely important to get highly intelligent, totally disinterested men who are accustomed to gathering facts, and believe me, those facts are hard to gather.

The CHAIRMAN. We have found that to be the case. It is most difficult for this committee to get the facts. We have to use every means at our command to get people to come up here and tell us the truth for the benefit and welfare of the country. We appreciate what you are doing, Mr. Reynolds.

Mr. REYNOLDS. Thank you very much.

Mr. FULTON. Now, to be clear about that, you mean, then, that as now constituted, an industry such as steel, which is unquestionably vitally necessary to defense—

Mr. REYNOLDS (interposing). Right.

Mr. FULTON. Is given a classification which of course would be a high classification, but then is allowed that same classification for its civilian needs as well as for its military needs.

Mr. REYNOLDS. Their defense should be separated just as our defense orders are separated from civilian. I mean the proportion of steel going into defense certainly ought to have the aluminum, and the others, where there is nothing but civilian, it should share and share alike with all other civilian users.

Mr. FULTON. The same thing would apply in the automobile industry.

Mr. REYNOLDS. Oh, yes.

Mr. FULTON. Which, as I understand it, now has 60 percent of its 1940 requirements as expanded by the increase in production in 1940.

Mr. REYNOLDS. That is right.

Mr. FULTON. Your proposal would be to give it a prior rating only to the extent that it was engaged in military and defense activities?

Mr. REYNOLDS. Absolutely, and let it take its share and share alike with all other civilian users, you see.

The CHAIRMAN. You would do the same thing with the silk-stocking substitutes, wouldn't you?

Mr. REYNOLDS. Yes.

The CHAIRMAN. I find that certain brands of substitutes for silk stockings are allowed large priorities in aluminum, and that silk and cotton are allowed very small priorities. I think they all ought to be in the same class.

Mr. REYNOLDS. I think that if you separate defense from civilian and then prorate civilian according to the use of the prior years, you are certainly not dealing harshly with anybody. Mistakes are liable to creep up on any other basis in my opinion.

Mr. FULTON. Now, in connection with the actual work of preparing plants for the reduction of alumina to aluminum, I noted that you said you would have a capacity of 120,000,000 pounds annually.

Mr. REYNOLDS. Yes.

Mr. FULTON. And at an expenditure for plant facilities, I believe, of \$20,000,000?

Mr. REYNOLDS. Approximately \$20,000,000.

Mr. FULTON. Which would mean that it would cost, I suppose, about 17 cents a pound to produce the facilities that, in the course of 1 year, would reduce alumina to 1 pound of aluminum.

Mr. REYNOLDS. Just approximately that—between 15 and 17 cents a pound.

Mr. FULTON. What is your best present estimate as to the cost of producing the aluminum per pound after your plants are in operation?

Mr. REYNOLDS. My best estimate is a hope. I hope it won't cost over 12 cents, but it likely will temporarily. I think I can bring it down between 10 and 12 cents when we get the labor and the machines for the program.

Mr. FULTON. And that it will be over 12 to start?

Mr. REYNOLDS. Oh, yes.

Mr. FULTON. How much over do you expect?

Mr. REYNOLDS. We don't like to think of that, but I have started so many plants. For instance, when I first started rolling aluminum foil, my cost was \$2 a pound, and I think I was selling it at 60 cents a pound, you see. But that is a loss incident to learning a new trade, breaking in men and training them on something new.

Mr. FULTON. And to get your organization working as such at a large production as distinct from a small production.

Mr. REYNOLDS. Then trial and error on the machines. Every machine has to be tested and tried and analyzed and everything else, so that I am not fooling myself; my cost would be more than 12 cents certainly for 6 months in my opinion.

Mr. FULTON. But with respect to that, does that include the cost of obtaining the bauxite, reducing the bauxite to alumina, and alumina to aluminum?

Mr. REYNOLDS. I include all of that in the aluminum ingot—the cost of the bauxite, freight, every item of expense.

Mr. FULTON. That would include your general administrative expense?

Mr. REYNOLDS. Oh, yes.

Mr. FULTON. And that, you estimate, will be about 12; you hope to get it down to 10, but in the interval before production is achieved it will be higher than 12.

Mr. REYNOLDS. Yes; I am sure it will.

Mr. FULTON. And against that, the price of aluminum at present is 17, is it not?

Mr. REYNOLDS. Yes, sir.

Mr. FULTON. And has been reduced from 20, and within the past few years has been as high as 25 or 26.

Mr. REYNOLDS. I wouldn't say in a few years. I think that it stood pretty well at twenty for a long, long time. That is my recollection. Then it was reduced to seventeen.

Mr. FULTON. And could you tell us anything about the spread between the cost of aluminum as furnished in ingot state by the Aluminum Co. and the price of finished articles as manufactured by the Aluminum Co.?

Mr. REYNOLDS. Well, the spread on the fabrication of the grades that I am familiar with have declined, while the metal stood still until approximately a year ago—the price of metal.

Mr. FULTON. You mean by that that the selling price of the finished product declined but the raw material price remained constant?

Mr. REYNOLDS. It did for some years, but recently that has declined three cents or so.

Mr. FULTON. What I had in mind was just this: The Aluminum Co. both sells the raw material in the sense of the ingot and sells the finished product.

Mr. REYNOLDS. Yes.

Mr. FULTON. It wouldn't be particularly important to it whether it made its profit by having an unduly high ingot price or not, except that all competitors would have to produce within that spread between the selling price and the ingot price.

Mr. REYNOLDS. It was a very dangerous position to anyone who was growing as a fabricator in aluminum, because that, shall I say, fear is always in the minds of an operator like myself, that they have the power to do it. I will have to say they did not exercise that power to crush us with respect to aluminum foil and powder.

Mr. FULTON. How about the spread between the foil price and the ingot?

Mr. REYNOLDS. The foil price came down and reduced our price, but still there was a margin of profit left.

Mr. FULTON. The power was not exercised but it existed, is that it?

Mr. REYNOLDS. Well, certainly it existed.

Mr. FULTON. And do you know as to whether it was exercised?

Mr. REYNOLDS. I would say not as to our foil and powder products;



except that the tendency was to reduce the price of fabrication, and you can't say what purpose governs any company. I can't say because they naturally wanted to increase the total consumption of aluminum.

Mr. FULTON. Have you ever investigated to see whether, for example, you could produce, that is, fabricate, aluminum into cable at a cost that would be no greater than the difference between the raw material that they would sell to you and the price at which the finished product is selling?

Mr. REYNOLDS. No; I never investigated cable. I did know that its selling price was pretty close to the cost of metal, or something like that. It didn't interest me as a fabricator.

Mr. FULTON. You wouldn't know whether the spread was sufficient or insufficient?

Mr. REYNOLDS. No; I always tried to keep our business, where the manufacturing part of it covered so many operations, where the basic cost of the metal was not a vital factor.

Mr. FULTON. I see. You mean, for example, instead of having the basic cost a large percentage or a fraction of the total manufactured value—

Mr. REYNOLDS (interposing). That is right.

Mr. FULTON. You tried to confine yourself to situations where the cost of the material was relatively less than that of the labor and the processing.

Mr. REYNOLDS. Say aluminum sheets, which run 200 square feet to the pound, well, that is aluminum foil, of course—on sheets that would run a pound per square foot, you can see that the cost of metal would be very vital in heavy sheets or plates, while in foil it would come secondary because of the immense amount of labor and skill necessary to reduce it to that thinness.

Mr. FULTON. I see.

Mr. REYNOLDS. Then we always carried that on and printed it and did everything else to it to make a profit.

Mr. FULTON. Mr. Reynolds, one other question has been raised here due to the fact that within the last few weeks we have determined—that is, O. P. M. has determined—that we are not going to have enough aluminum unless we increase production by four or five hundred million pounds more than we have made provision for.

Mr. REYNOLDS. Well, I am acquainted with that. In fact, I share that opinion.

Mr. FULTON. Have you any facilities that you can increase or, if so, are you willing to do it?

Mr. REYNOLDS. I was asked that by the O. P. M. As I understood it, they proposed to increase the amount of aluminum metal by 600,000,000 pounds, 200,000,000 of which to be imported from Canada, 400,000,000 to be produced from new plants. And in reply to the query, I addressed my letter to Mr. A. I. Henderson, Deputy Chief, and explained that Reynolds Metals was building two plants, one at Longview, Wash., one at Lister, Ala., each to produce 60,000,000 pounds, and that without unduly straining our organization, we were entirely confident that by locating additional plants at Lister and Longview—but not at other locations, which I will ex-



plain later—we could increase our production by 200,000,000 pounds per year.

Now, the reason for that is that our supervision and men who know how to do this thing are few. For instance, I would have to build a large alumina plant right at Lister where there are men that would know how to supervise both plants, and it wouldn't be feasible to split them up. Of course, we don't have sufficient to do that. And the same thing with the reduction plants from alumina into aluminum metal. Now, when it comes to fabricating plants, we do have ample trained metal rollers and metal workers, and those fabricating plants could be put in the far West or anywhere that the defense might want. But if Reynolds Metals is to increase the production of alumina and from alumina to metal, it should be located at the two locations where we are now building plants.

I will leave for your committee this letter that I addressed to Mr. Henderson, but I do want to take this opportunity to explain this, that Reynolds Metals, after my interview with Mr. Schram and Mr. Jones, wasn't left with anything more that I could mortgage, so there was nowhere that I could get funds without getting Government funds. The embarrassing thing is to put a Government plant connecting or adjoining mortgaged plants, and it brings up a problem, because after the emergency, what is going to happen to the plant that we don't own, which is adjoining and connecting property? Now, in my statement I asked that the Government give me the sole right to purchase or obtain for itself the right to keep those plants as stand-by war plants, or to dismantle them.

If I had the nucleus of trained engineers that knew how to make alumina and reduce it to metal, I would then advise that these plants be placed elsewhere, but if Reynolds Metals is to do anything quickly, we should do it at Lister, Ala., and Longview, Wash.

MR. FULTON. Do you place any strings on the operation of the plant by the Government, if it sees fit?

MR. REYNOLDS. Here is the point, now. I leave it to your fairness. We are here to do what we can for defense. If it means a sacrifice, well, everybody is going to sacrifice before we get through with this little game, anyway. So I am not worried about that. But it is embarrassing after the emergency is over, to have a plant half owned and half not owned. It is a situation that somebody smarter than I am is going to have to figure out, and I am perfectly willing to do anything the Government plans. And if they think it is fair, write it into the contract, because I think if we don't do this, none of us will have anything that we might save a few crumbs if we proceed with haste.

MR. FULTON. In other words, you are willing to negotiate to see what the O. P. M. may have in mind?

MR. REYNOLDS. I mentioned this in my letter to show them what would happen in the emergency.

THE CHAIRMAN. You are putting that in the record, aren't you?

MR. REYNOLDS. Yes; I am.

SENATOR TRUMAN. The letter which you wrote Mr. Henderson may be admitted to the record.

(The letter referred to was marked "Exhibit No. 55" and is included in the appendix on p. 947.)

Mr. REYNOLDS. And I would hate to have a competitor, for instance, in my backyard, my factory yard, because we might have a little fight occasionally.

Another proposition I didn't put in the letter, if the Government is determined to have Government-owned and Government-operated plants, they might consider taking over plants we are building and let us pay off our mortgage, and we will buy from the Government-owned and the Government-operated plants. But don't put a squeeze play on us now after I have volunteered, because I am not boasting, but I do desire to repeat: We are the only independent fabricator and the only large user of aluminum that did volunteer in this emergency. So I say let's don't shoot the volunteer.

The CHAIRMAN. That is all, Mr. Reynolds. Thank you.

Mr. Cliffe!

### TESTIMONY OF FRANK B. CLIFFE, PRIORITIES DIVISION, OFFICE OF PRODUCTION MANAGEMENT

The CHAIRMAN. Mr. Cliffe, will you state for the record your name and connection?

Mr. CLIFFE. Yes, sir. Frank B. Cliffe, Priorities Division, Office of Production Management.

The CHAIRMAN. We are interested, Mr. Cliffe, in priorities this morning, particularly as they affect the aluminum priorities, and I have here some figures and statements which I would like for you to explain to this committee so we can understand them. For instance, we have iron and steel foundry products marked "B-4." What does "B-4" mean?

Mr. CLIFFE. I think, Mr. Chairman, it would be helpful if I gave you a general outline of priorities as applied to aluminum.

That is, as a background for answering the specific questions.

The CHAIRMAN. Proceed.

Mr. CLIFFE. Under the Army and Navy Munitions Board, priorities have been assigned for a long time to direct defense contracts. Those priorities indicate the urgency of the contract; that is, the necessity of having delivery date met, if there are other products, also for defense, competing for the same facilities. In other words, if a manufacturer has two orders for different defense products, which of these shall he take care of first?

As we progressed further in the defense program, it became evident that it would be necessary to establish some form of priorities for civilian uses. It was conceded by all that the defense contracts should be taken care of first.

Mr. FULTON. When did that become evident?

Mr. CLIFFE. It became evident, I take it, at the time that the President of the United States reorganized the Advisory Commission, placing Mr. Knudsen as director and Mr. Hillman as associate director of the Office of Production Management. That was, as I recall it, in the last week of December 1940. Shortly after that, Mr. Stettinius was appointed director of priorities.

Mr. FULTON. I thought that on December 29 there had been an announcement that—

Investigations just completed disclose no serious shortages in aluminum supplies for aircraft and other military items now required for national defense.

Certain temporary delays of delivery will doubtless occur. New construction, however, is underway to increase fabricating facilities. This expansion will increase capacity from two to five times.

That was September 1940. Do you mean at the time that release was issued, it was already determined that there would have to be priorities?

Mr. CLIFFE. This appointment of Mr. Stettinius, as I understand it, was not related to aluminum, but was an appointment covering any priorities that might become necessary with the expanded defense program.

Mr. FULTON. I misunderstood.

Mr. CLIFFE. He is Director of Priorities over all, not related to any particular product.

Mr. FULTON. My question really was intended to bring out the date that it was first concluded that there was any need for priorities in aluminum.

Mr. CLIFFE. If your question is confined to aluminum, I think that we might work with the date of February 24, 1941.

Mr. FULTON. That was the first time when it was concluded that it was necessary to consider the question of priorities in aluminum, is that right?

Mr. CLIFFE. That is the first time that any public action was taken. Of necessity—

Mr. FULTON (interposing). That wasn't my question.

Mr. CLIFFE. Of necessity, there was consideration of the problem before the public action was taken.

Mr. FULTON. My question was, When was it first considered?

Mr. CLIFFE. There is no date that I can give you, Senator, that specifies—

Mr. FULTON (interposing). I'm not a Senator.

Mr. CLIFFE. The particular moment when a thought arises. It is of necessity an evolution as the problem arises.

Mr. FULTON. Then what was the first date on which any action of any kind, other than public action which of course wouldn't be important, was taken on this subject?

Mr. CLIFFE. The first definite action that was taken was February 12, 1941. At that time the aircraft companies, which were obtaining large quantities of aluminum to fulfill their Government contracts, were requested to give special treatment to the scrap resulting from that production.

Mr. FULTON. How much time intervened before that request was made during which there was discussion in the O. P. M. as to this question of whether anything should be done?

Mr. CLIFFE. I can speak only for what happened on and after January 6, because that was the date that I reported for duty in the Office of Production Management. Shortly after I reported, there was general discussion among those who were interested in the aluminum situation of the possible need for priorities.

Mr. FULTON. Would you describe what that general discussion was and who was present?

Mr. CLIFFE. The general discussions were not a formal meeting, but were a series of conferences and informal discussions in which the members most concerned, so far as the Office of Production Management is concerned, were Mr. Marion B. Folsom, who is in the room this morning, Mr. Alex Henderson, Mr. Grenville R.



Holden, who is also present this morning, and various of our associates who were less intimately concerned with the aluminum problem.

Mr. FULTON. What was the conclusion reached as to the existence of supplies sufficient to meet demands and as to the adequacy of the demands?

Mr. CLIFFE. The early part of those discussions confirmed the statements that had been made during 1940, namely that there was a supply adequate to take care of the military requirements as then scheduled, and to take care of normal civilian requirements.

Mr. FULTON. And who had scheduled the military needs?

Mr. CLIFFE. As to that I should prefer to have the question answered by Mr. Holden,<sup>1</sup> who I believe will appear a little later in the morning, and possibly by Mr. Folsom.

Mr. FULTON. So that at that time, at any rate, it was concluded that there was no need for priorities?

Mr. CLIFFE. In January, that is correct. In February, as I mentioned, on the 12th of the month, steps were taken to conserve the scrap produced by the aircraft companies.

Mr. FULTON. And could you explain why they were taken then, as distinct from the conclusion not to take them 2 weeks before?

Mr. CLIFFE. Yes, sir. The discussion which led to that conclusion was a discussion not of aluminum primarily, but of magnesium. May I point out that the manufacturer of aircraft uses a substantial number of different alloys of aluminum, that is, metals in which aluminum has been combined with some other metal. The proportions vary because of the requirements. In certain places strength is important; in other places brittleness would be a fatal weakness, and so on. It happens that magnesium is one of the alloys used in certain of the combinations. The supply of magnesium is not as large as the supply of aluminum. It became evident that if the scrap from the airplane companies were allowed to follow the usual channels of going through dealers, wholesale scrap dealers, and finally secondary smelters, we would lose from our over-all picture a substantial amount of the magnesium content of that scrap. Therefore, the first step was taken not primarily to conserve aluminum, but to conserve the magnesium content of the scrap. By having this scrap treated specially and handled as a separate item, it was possible to conserve most of the magnesium content.

Mr. FULTON. That would be the purpose of the February 14—

Mr. CLIFFE (interposing). February 12.

Mr. FULTON. February 12 priority?

Mr. CLIFFE. That was the primary reason for that order placed upon the aircraft companies.

Mr. FULTON. And would you proceed to summarize what took place later?

Mr. CLIFFE. Yes, sir. Following that, on February 24, as we had further studies and as the military program expanded, with action by Congress, aluminum suppliers were instructed to report to the Office of Production Management a statement of their orders.

Mr. FULTON. And also of their reserves?

<sup>1</sup> Grenville R. Holden, whose testimony appears, *infra*, p. 835 et seq.



Mr. CLIFFE. And of their inventories or reserves. They were also notified that any defense orders which had not been given specific priority rating in accordance with the Army and Navy Munitions Board program would be given what was termed an A-2 rating, which meant that they would come in the manufacturer's schedule just below the orders that were for direct defense purposes and so designated, but above all, civilian production.

Mr. FULTON. Now, I think you said that new studies and also estimates based on new requirements of the Congress were the cause of that. Would you tell me what the nature of the new studies was?

Mr. CLIFFE. Again I should like to refer that question to Mr. Holden, who is in the Production Division and more closely associated with those studies.

Mr. FULTON. In the Priorities Division you simply carry into effect the results of their conclusions based on their studies, I suppose?

Mr. CLIFFE. We cooperate very closely of necessity and are guided very largely by the figures which they supply as to prospective needs and probably available supplies.

Mr. FULTON. But those figures, at any rate, were supplied during this period of February that resulted in these priorities you have described?

Mr. CLIFFE. That is right.

Mr. FULTON. Would you tell us generally the structure of the priorities beyond just the A-2 rating that you have mentioned?

Mr. CLIFFE. At that date there were no priorities beyond A-2. All civilian orders were treated as a general class rating below A-2.

The next step of major importance was taken near the end of March—March 21. At that time the first mandatory order on aluminum was issued. This order outlined the situation as it was developing, the possibility that there would not be sufficient aluminum to meet all requirements for defense and for civilians, and then continued with a supplementary order which established a series of preference ratings for civilian uses. It also required certain additional reports. A little more accurate control over the inventories of the companies was called for.

Mr. FULTON. At that stage did you have accurate reports of inventories from the various companies that would be affected by the priority ratings?

Mr. CLIFFE. No, sir. At that time there was no place in the world where there could be obtained current information of the inventories held by the various fabricating and manufacturing companies using aluminum.

Mr. FULTON. Was that because they did not furnish it or because they were not asked for it?

Mr. CLIFFE. It had not been requested at that time.

Let me make clear my statement. I have referred to fabricators of aluminum and manufacturers using aluminum. We normally think of the Aluminum Co. of America as the only domestic producer of the metal. We will shortly have to add Reynolds Metals Co. to that list.

After the metal has been produced, most of it goes to a group of companies that we term fabricators, who shape the aluminum in one of several methods, and then sell it to manufacturing companies for incorporation in their product. Those manufacturing companies in-

clude aircraft companies, they include companies that are working on Navy contracts, and so on. They also include the many companies that use it for civilian purposes.

Mr. FULTON. And many that use it for both civilian and military purposes.

Mr. CLIFFE. Under present conditions, many concerns are using part of their facilities for defense contracts and part for a continuation of their former civilian business.

Mr. FULTON. The fraction, of course, would differ with each company, or at least with each business.

Mr. CLIFFE. Yes; with each company, sir; and would change from week to week. The picture, generally, is that as they get into production on defense orders and are able to use their facilities and manpower on defense orders, they are shrinking the amount of facilities and manpower that they are devoting to civilian or nondefense orders. That rate of change varies also with each company.

This general preference order established a scheme of civilian preference ratings that I should like to outline to the committee just briefly, and then give you a little background of the preparation of that order.

It first recognized that defense orders must be cared for before any civilian shipments were made. That applied to the Aluminum Co. of America as the then sole producer of the metal, it applied to the group of companies that I have described as fabricators of the metal, and it applied also to the companies known as smelters, who are handling scrap.

Mr. FULTON. Would that mean that the responsibility of determining whether it was in fact a defense need was placed by the O. P. M. on the industry involved, is that it?

Mr. CLIFFE. That is correct, under general instructions that were issued by O. P. M. The situation that existed was this: With thousands of customers using aluminum for hundreds of thousands of orders, some defense, some civilian, some half-way between, administratively it would have been impossible to take prompt enough action within the personnel of O. P. M. to make an order effective if the O. P. M. had attempted to review these hundreds of thousands of orders and uses.

Mr. FULTON. That, of course, is why you depend upon the cooperation of the industry.

Mr. CLIFFE. Therefore, we asked for—and I must say have received—cooperation from the entire industry.

Mr. FULTON. When you say you have received, do you mean that you have checked the uses to which the aluminum was put, and you have found that it was in line with the request of the O. P. M., by a check method that you find reasonable?

Mr. CLIFFE. Yes, sir. We have established a group of field examiners who review the situation in the manufacturing and fabricating companies to determine whether they are carrying out the orders as issued by O. P. M. Naturally, in such a survey and with a new problem, there are instances in which there have been misunderstandings and inaccurate procedures. Those are corrected, and they have been the exception.

Mr. FULTON. When you say they are corrected, would you tell us what is done other than to tell them to quit doing it in the future?

Mr. CLIFFE. We check back to see what has happened.

Mr. FULTON. And when you find that they did not conform, then what is done?

Mr. CLIFFE. That has been taken up with the companies, and I have not had any instances in which they have failed to conform after the matter was brought to their attention and clarified.

Mr. FULTON. And is there anything done about the past, that is, as to that part of the time when they had operated in noncompliance?

Mr. CLIFFE. No penalties have been imposed in such instances. Recognition has been given to the fact that we are facing a very difficult situation, in which compliance is much more desirable than enforcement.

Mr. FULTON. In other words, if you don't comply, nothing happens except that you are told to comply in the future, is that it?

Mr. CLIFFE. That is the first step. If we found instances in which companies repeatedly refused to comply, then it would be within the authority to shut off their supply of future material.

Mr. FULTON. But you have found no such instance in any industry to date?

Mr. CLIFFE. We have not found any instance where we felt the situation was severe enough to justify that penalty as yet.

Mr. FULTON. But you have found instances where it would approach it, have you?

Mr. CLIFFE. If continued; yes.

Mr. FULTON. And you are watching it carefully with a view immediately to penalizing such recalcitrants if they do not conform to the priority orders?

Mr. CLIFFE. As soon as that seems justified.

Mr. FULTON. Would you inform the committee as soon as you find an instance which, in the opinion of O. P. M., is sufficiently severe to warrant some action other than telling them to go and sin no more?

Mr. CLIFFE. I have made a note of that request, and, of course, will be glad to comply.

May I outline the general picture of the civilian priorities that were established?

I mentioned that we first took care of defense orders.

Next we provided an emergency supply that might be called upon if unusual conditions arose in a specific instance, which might be the result of some form of disaster where a sudden change in plans would be necessary and it would be desirable to give shipment of aluminum to a particular customer preference.

The next step was to provide for repair and replacement parts. Keeping our industrial machine going seemed to be highly essential under present conditions. A repair part of a relatively small amount might serve to keep an entire factory going. Therefore, we gave high preference to repair and replacement parts.

The next classification was for items directly affecting public health and public safety. The reason for that is obvious.



The next group was material in which the manufacturer was producing certain standard items, some of which are used for defense and some of which are used for purely civilian applications. At the time of manufacture it may be impossible, and in many instances is impossible, to tell which particular piece of machinery will go for defense purposes and which will go for civilian. Many of these small hand tools are in that category. A manufacturer is producing in quantity so that he will be prepared to fill promptly requests for the particular tool when they come to him for defense purposes.

Next we took care of the customers that require only small quantities of aluminum per month. That was done so that the largest number of customers would not be disturbed in their ordinary operations. You can see the reasons for that. The small businessman, the man who uses only a small quantity, could be allowed to go on with relatively minor restriction.

We next gave preference to the customers that had a product in which aluminum was only a small part, in other words, where a small amount of aluminum was assembled with a great many other things that were not severely restricted or scarce under present conditions. That was largely done to protect the labor situation, so that we would not have the unfortunate situation of closing down an entire manufacturing plant, and all their raw material suppliers, and all their distributive agents merely because of the absence of a small amount of aluminum when everything else needed was available.

Mr. FULTON. For example, the automobile industry is one where they have a very small quantity of aluminum compared to the total car.

Mr. CLIFFE. That is right.

Mr. FULTON. But if you reduced their usage of aluminum, it wouldn't mean that they couldn't make cars, because one of the largest manufacturers doesn't use any aluminum in his pistons anyhow, and the others could at least make pistons without aluminum.

Mr. CLIFFE. That is correct, sir; and that brings in another point, and that is the time necessary to change a relatively complicated piece of machinery from the use of aluminum to the use of some other metal. I think that I may safely say that the manufacturers of automobiles are diligently redesigning their product.

Mr. FULTON. Is that why we will have 1942 models, so that they can cut out the aluminum in their pistons?

Mr. CLIFFE. I would prefer to have the automobile companies answer that question. My understanding, generally, is that in the 1942 models there will be much less aluminum in all of the cars than there has been in the previous model.

Mr. FULTON. Is it your understanding that they are not going to have aluminum pistons?

Mr. CLIFFE. Yes, sir.

Mr. FULTON. So then there is no need of giving them any prior rating for that, is that right?

Mr. CLIFFE. Not when they get into the production of their 1942 model.

Mr. FULTON. But until then they should have 60 percent of their 1940 requirements?



Mr. CLIFFE. It seems desirable not to throw out of gear the entire automobile industry for the remaining month or so of their model year, not only for the reason that you have pointed out, Senator, but for another very important reason which has affected many of our policy decisions. Companies that are changing to defense production sometimes need to have a supply of aluminum to carry on their old production, their civilian production, while they are getting their tools, their plans, and their materials together for defense. To illustrate, if a company had all of its raw materials shut off April 1, and it was not ready to produce defense items until July 1, it is very doubtful whether they could make the transition and quickly swing into production on July 1 on their defense items. It may be desirable, and it has seemed so in a number of instances, to supply aluminum for the civilian use for this transitional period. Those supplies have been tapered down as rapidly as the men and the machines could be transferred to defense production.

The next class that we provided was for places in which there is no reasonably satisfactory substitute for aluminum. Over a period of years there have been a number of developments that have been based upon the physical characteristics of aluminum.

The CHAIRMAN. Is that true of rayon?

Mr. CLIFFE. That is true of certain of the manufacturing operations in rayon, where the lightness of the metal is important in the manufacturing process.

The CHAIRMAN. Is that true of cotton or silk?

Mr. CLIFFE. That is true in all of the textile industries as to certain parts where it is necessary to have light metals.

The CHAIRMAN. Yet rayon got a preference over cotton and silk and the other textile manufacturers. Why was that?

Mr. CLIFFE. I should like to comment on that in just a minute, if I may, Senator.

The CHAIRMAN. I will appreciate it if you will. I am interested in it.

Mr. CLIFFE. The final classification was a classification where it appeared that substitution of other materials for aluminum could be effected fairly promptly and with at least a reasonable degree of satisfactoriness from the viewpoint of the consumer.

Now a word as to these classifications: These were not merely arbitrarily designed by one individual and announced as a priority schedule. The basic ideas underlying them were outlined to the Aluminum and Magnesium Priorities Committee, discussed at length by that committee—

#### MEMBERS OF PRIORITIES COMMITTEE AND THEIR INDUSTRIAL CONNECTIONS

Senator BREWSTER (interposing). How many members were there on that committee?

Mr. CLIFFE. The committee consists, sir, of four voting members and a substantial number of additional advisory members.

The CHAIRMAN. Who are the voting members?

Mr. CLIFFE. The voting members are a representative of the Army, Colonel Lyon; a representative of the Navy, Lieutenant Com-

mander Logan; a representative of the producers and fabricators, Mr. Farrell.

The CHAIRMAN. What is his connection? Where is he from?

Mr. CLIFFE. He is chairman of the board of the Fairmont Aluminum Co., one of the fabricators that I mentioned earlier.

Mr. FULTON. What type of business do they engage in?

Mr. CLIFFE. They buy aluminum ingot from the Aluminum Co. of America and produce largely sheet aluminum.

Mr. FULTON. Sheet aluminum. What rating did sheet aluminum get?

Mr. CLIFFE. Sheet aluminum did not get any rating. That is the form of the aluminum, and that does not decide the rating which will be given to it. It is the use to which aluminum will be put that decides its rating. Thus, some sheet aluminum going into aircraft for defense purposes will have the aircraft priority rating; sheet aluminum going into domestic household appliances will take the rating of those appliances.

The CHAIRMAN. Mr. Farrell, of course, would get all his aluminum from the Aluminum Co. of America, wouldn't he?

Mr. CLIFFE. Except for relatively small amounts. I believe they do rework some scrap material. I am not sure on that point.

The CHAIRMAN. Who is the fourth member?

Mr. CLIFFE. The fourth member is a representative of the industrial users, or the manufacturing companies using aluminum; he is Mr. E. J. Barney, of the Frigidaire Division, General Motors Corporation.

In addition to the voting members of the committee, labor is represented by Dr. Lubin, who usually has an alternate attending the meeting; and the consumers are represented by Miss Elliott's organization in the person of a delegate whom she has designated, Mr. McCormick; and then there are certain staff men from O. P. M. who are present.

The chairman of the committee is, in accordance with the general priorities set-up, a man who was selected because of a minimum of connection with the industrial world; in other words, one who would be as impartial on the basis of past experience as it would be possible to obtain. The chairman in this instance is Dr. Hopkins, president of Dartmouth College. I should like to—

Senator BREWSTER (interposing). But he hasn't any vote.

Mr. CLIFFE. I should like to explain the functioning of the committee in answer to your question.

Senator BREWSTER. Go ahead.

Mr. CLIFFE. The committee discusses the problems that arise from time to time. The four members indicate their opinions and the opinions of the groups which they represent, and in some instances take formal vote, although that is not always done.

Mr. CLIFFE. As a result of the discussion in the committee and the vote of the committee, the decision is made in every instance by Dr. Hopkins, the chairman. The committee, in other words, is an advisory group to whose advice he listens.

The CHAIRMAN. It looks very much to me as if the voting members of the committee represent du Pont, General Motors, and the people who are most interested in these priorities. I can't see that that is

for the welfare and benefit of the country. I don't believe that is good public policy. The other fellow who is most vitally at interest in this thing makes the decision for his own welfare and benefit. From the looks of these priorities they have their own businesses at heart.

Mr. CLIFFE. May I point out, sir, that Mr. Farrell, who is the producer representative, is chairman of the board of the Fairmont Aluminum Co., which to the best of my knowledge has no connection with du Pont, whom you mentioned. The situation was this.

The CHAIRMAN. The Aluminum Co. of America can absolutely shut off its supply, and I imagine that he would be in as bad a position as Mr. Reynolds found himself under the same circumstances.

Mr. CLIFFE. May I point out, Senator, that there are in the United States several thousand users of aluminum?

The CHAIRMAN. It is not in the interest of public policy. What I am getting at is for these fellows to be in charge of these boards, as apparently this case right here shows, whose interests are most at stake in the priorities—I can't get it out of my head that that is exactly what has happened here.

Mr. CLIFFE. May I point out, Mr. Chairman, that this is an advisory committee to discuss the problem? It is necessary in a discussion of a problem to get men who are familiar with the problem.

The CHAIRMAN. I understand that but they make the decision.

Mr. CLIFFE. No, sir.

The CHAIRMAN. They are the voting members of the committee.

Mr. CLIFFE. No, sir. May I repeat, the decision is made by the impartial chairman, Dr. Hopkins?

Senator BREWSTER. Now, has he ever varied from the recommendations of the board?

Mr. CLIFFE. Yes, sir; he has.

Senator BREWSTER. In many instances?

Mr. CLIFFE. Not in many instances. Usually after there is a full discussion of the problem, there is a general agreement.

Senator BREWSTER. Now in what instance did he disagree?

Mr. CLIFFE. I recall one instance that happened quite recently in the matter of allocation of metal for the month of May. The committee recommended that certain classes of users should receive no metal whatever.

Senator BREWSTER. Who were they?

Mr. CLIFFE. They were the group who are classified as B-6, 7, and 8, those in the lower part of the scale. Dr. Hopkins' decision, which was made effective, was that users in those classifications should receive some metal, and in order to obtain that metal the necessary further restrictions would be made in those who ranked higher.

Senator BREWSTER. Were those in the 10-percent category; did they get 10 percent?

Mr. CLIFFE. Under the normal circumstances they would have received 40, 30, or 10 percent, respectively.

#### ALLOCATION OF ALUMINUM UNDER PRIORITIES SYSTEM

Senator BREWSTER. What percentage of the aluminum last year, for instance, was used by the automobile industry?



Mr. CLIFFE. I do not have that figure here. I think that it could be obtained, and I would be very glad to furnish it to you.

Senator BREWSTER. Do you have any idea of the approximate proportion? What I want to get is an idea of what the relative proportions are in these various groups.

Mr. CLIFFE. It would be only a rough guess.

Senator BREWSTER. Let's have it.

Mr. CLIFFE. The rough guess would be 5 to 10 percent.

Senator BREWSTER. And they are restricting production for this coming year, are they not?

Mr. CLIFFE. They are doing two things that are of importance.

Senator BREWSTER. Let's see if you can just answer the question. They are restricting production for this coming year.

Mr. CLIFFE. Yes, sir; they have.

Senator BREWSTER. By approximately 20 percent?

Mr. CLIFFE. Yes, sir.

Senator BREWSTER. And last year, 1940, was a big year for them.

Mr. CLIFFE. That is right.

Senator BREWSTER. So that when they get 60 percent of their 1940, is that what they get?

Mr. CLIFFE. That is according to the classification.

Senator BREWSTER. If they get 60 percent in 1940, with the reduction of 20 percent in prospect and a big year in 1940 they are getting nearly all that they currently would require; wouldn't that be true?

Mr. CLIFFE. Not necessarily.

Senator BREWSTER. Well now, just what is true?

Mr. CLIFFE. I must answer your question because you have raised a point. These are the maximum amounts that will be allowed. In no instance, however, are shipments made beyond the actual requirements of the customer. If, for illustration, a company has been obtaining 10,000 pounds a month and redesigns away from aluminum, we do not continue to authorize shipments.

Senator BREWSTER. Well, the point which I am making is that under the current allocation, if they simply continued right along on the schedule which you have arranged, in view of the record of 1940, plus the curtailment that they have done at your request, they would be pretty near what they had formerly been requiring for automobiles.

Mr. CLIFFE. No, sir.

Senator BREWSTER. Well now, you just work that out. I don't see why, if you take 20 percent.

The CHAIRMAN. If they increased production 30 percent in 1940, then reduced it 20 percent in 1941, they are about back where they were in 1939, aren't they?

Mr. CLIFFE. That is mathematically correct.

The CHAIRMAN. You just take your figures and work them around and you will see that the aluminum allocated to the automobile industry is as much as they would need anyway.

Senator BREWSTER. Practically 100 percent might be 80 percent.

The CHAIRMAN. That is the way I figure.

Senator BREWSTER. As far as the history is concerned, what may happen in the future we don't know.

Mr. CLIFFE. No, sir. May I point out that your calculation overlooks one point, and that is that the maximum that they are allowed is

only 60 percent of their production, and therefore so far as aluminum is concerned, they cannot use more than 60 percent of what they used in 1940.

The CHAIRMAN. Which is 30 percent over their normal condition anyway.

Mr. CLIFFE. 1940, as I understand it, their production was not as large as it is currently running in 1941 prior to the installation of priorities.

Senator BREWSTER. I suppose that is all a matter of arithmetic, but when you add 30 percent and take off 40—

The CHAIRMAN (interposing). Add 30 and take off 20 and add 60 percent of that and you have pretty near 100.

Senator BREWSTER. But you have in that category of automobiles this 60-percent figure. Meanwhile you have in the food, cotton, silk, woolen goods, house textiles, 10 percent. Now just why are automobiles so high and the food and textile industries so low?

Mr. CLIFFE. All right, sir, to answer your question there—

Senator BREWSTER (interposing). As concisely as possible.

Mr. CLIFFE. Following this general classification which was issued in March, a detailed classification of the uses of aluminum was prepared. That runs on for page after page because there are literally thousands of different ways of using aluminum. That classification of the specific use of aluminum reviewed all of the known uses that we could find and endeavored to group them under these broad headings. With such thousands of instances of use, it is obvious that no two individuals will exactly agree in the placing of all of those items. A draft of this classification, therefore, was submitted to the Advisory Committee. It was reviewed by representatives of several of the producers. It was reviewed by the voting and the nonvoting members of the Advisory Committee, and as a result of all of their reviews, it was finally issued to be effective in April. That classification roughly groups the finished products, the thousands of uses, under these seven main headings that I have previously described.

It is obvious, sir, that anyone can disagree with certain of the classifications. They represent, however, the composite view of all of these groups that reviewed the detail before it was issued. It is not, in every instance, in exact accord with my personal viewpoint, but it does represent what the group thought should be done in the light of the use to which the aluminum was being put, the labor situation that was involved, the effect on our over-all economy of restricting supplies.

Senator BREWSTER. Wouldn't you think that you would get a somewhat more impartial viewpoint from someone not so actively identified with the problem as a representative of one of the largest private users?

Mr. CLIFFE. You probably would get more impartial but a less well-informed viewpoint. Therefore, we checked, you see, and obtained viewpoints from many different individuals.

Senator BREWSTER. Wouldn't the viewpoint of this particular concern be available as an adviser, rather than having him in the position of a voting member?

Mr. CLIFFE. Well, there, sir, you are dealing with the organization of the Priorities Division, for which I have no direct responsibility. I am just one of the boys doing some of the work.

Senator MEAD. It occurs to me, if I may make the observation, that O. P. M. ought to revise the voting personnel so that hereafter they would be the advisory personnel and the advisory personnel would be the voting personnel. It occurs to me that it isn't in keeping with good ethics, because I can't imagine a Senator who was an officer in an aluminum company participating in the tariff discussions of the Finance Committee and voting on that particular schedule in the Senate. I think it would be almost disgraceful, so it occurs to me—

Mr. CLIFFE (interposing). May I point out, sir—

Senator MEAD (continuing). That that isn't even permitted in good business. A director is not permitted under similar circumstances to cast his vote. In my State it is illegal.

Mr. CLIFFE. I concur in what you say, sir, and I would like to point out again that there is no representative of the Aluminum Corporation of America or of Reynolds Metals Co. on the committee.

Senator MEAD. But they are so closely allied the Aluminum Co. has a stranglehold. General Motors is tied in there; the du Ponts are very closely related. So that what you say is apparently true but, as it applies, it is just as effective as though they were working for the Aluminum Co.

The CHAIRMAN. I think the priorities list very conclusively shows that.

Senator MEAD. I think, Mr. Chairman, that we ought to have the name of every man on the Priorities Committee and his association with the industrial activity of the Nation and his position on these various priority boards.

Mr. CLIFFE. I am sure that we will be very glad to furnish that to the committee, sir.

Senator MEAD. Very good.<sup>1</sup>

Mr. CLIFFE. May I conclude this part of the discussion by stating again that the committee is an advisory group, that the decision is made always by the impartial chairman, Dr. Hopkins, who as president of Dartmouth College has no connection that I know of with any industrial organization.

Mr. FULTON. Does Dr. Hopkins spend all of his time in Washington?

Mr. CLIFFE. Yes, sir; with the exception of running up to Hanover for Saturday and Sunday occasionally to keep Dartmouth College running.

Mr. FULTON. Does he have any function other than with aluminum?

Mr. CLIFFE. Yes, sir; he has a function in connection with other minerals and metals.

Mr. FULTON. So that he in effect would have to try to familiarize himself with all of the metals, and in passing on this would be in somewhat the position that the Under Secretary of War is when he passes on a contract that has been negotiated by others and with which he has at best a rather general familiarity as to particulars?

<sup>1</sup> See footnote 1 on p. 777.



Mr. CLIFFE. May I answer your question in this way? He is a very busy man, a very hard-working individual.

Mr. FULTON. He has a great many fields and tasks to cover?

Mr. CLIFFE. He has several fields. He has two committees of which he is chairman—the aluminum and magnesium committee, and the nonferrous metals committee. On those two committees he is chairman, and his time is devoted to the work of those committees.

Mr. FULTON. Is he also a member of other committees?

Mr. CLIFFE. He is not a member of any other committee.

Mr. FULTON. Has he any other functions?

Mr. CLIFFE. He has general supervision over two other committees that have their own chairmen.

The CHAIRMAN. I will appreciate it very much if you will furnish for our record a complete list of all these O. P. M. committees, their personnel, where they came from, what their connections are, and what their functions are, and let that be a part of this record, and furnish each member of this committee a copy of that set-up.<sup>1</sup>

Mr. CLIFFE. I shall be glad to refer that to Mr. Stettinius, who I am sure will be glad to comply.

Mr. FULTON. I was interested in this question of inventories. When, for the first time, were they asked to submit a certified inventory of their aluminum inventories?

Mr. CLIFFE. They were asked to submit a certified statement of their inventory as of March 31, 1941.

Mr. FULTON. And when were they asked?

Mr. CLIFFE. The request was made, I believe, March 21, 1941.

The CHAIRMAN. We are going to recess the committee for a few minutes. Finish this question, and then we will talk about recess.

Mr. FULTON. Well, then, I take it the priorities were established before we had any information on inventories?

Mr. CLIFFE. Before we had any accurate information on the inventories of the thousands of users; yes, sir.

Mr. FULTON. And in connection with the testimony of Mr. Reynolds with respect to flow metals, did you have accurate information as to what the Aluminum Co. had in flow metals?

Mr. CLIFFE. Yes, sir; we had information from the Aluminum Co. and from the Reynolds Co.

Mr. FULTON. Did you set up any priorities that would affect the Aluminum Co. in using that aluminum for further fabrication?

Mr. CLIFFE. Yes, sir. I should like to point out that the Aluminum Co., in the sense of priorities, has two functions. It furnishes ingot metal to other companies, including Reynolds.

Mr. FULTON. But it also does fabricate.

Mr. CLIFFE. And the second is that it uses some of its own ingot to fabricate.

Mr. FULTON. Now, what I had in mind is what restriction did you place on it to prevent it from using an inventory supply of flow metals, which it had increased by not making deliveries to Reynolds in accordance with orders?

<sup>1</sup> In a letter dated May 21, 1941, the General Counsel's Office of the Office of Production Management submitted "a list of persons, including dollar-a-year men, holding responsible positions in the operating divisions of the Office of Production Management." The list is included in the appendix on p. 976.

Mr. CLIFFE. Right. I am glad to answer that question. The priorities restrictions, as they related to the Aluminum Co.'s fabricating departments, restricted the shipments that they might make after the effective date of the order. Therefore, if they had built up an excess inventory of flow metal, they gained nothing by that process because the restriction related to the shipments that they might make just as applied to every other fabricator.

Mr. FULTON. You mean they didn't make a positive or affirmative gain, but by reason of their competitors not having flow metal in like quantities—by that I mean the other fabricators of aluminum—there would be a possibility of the Aluminum Co. using up to the maximum permitted under the priorities because it had the flow metals inventories, while the competitors would have been compelled to go below their maximum requirements by their lack of flow metal inventory. Isn't that true?

Mr. CLIFFE. Hypothetically, I think it is correct, sir. Actually, I believe that the Reynolds Metals Co. has each month been able to ship all that they were allowed to ship under the priority restriction.

Mr. FULTON. Is that true of every other fabricator?

Mr. CLIFFE. That is not true of every other fabricator, because some of them had other difficulties in processing metals, in handling orders.

Mr. FULTON. Then I take it no fabricator had any difficulty in getting aluminum for the purpose of processing orders to the extent the priorities permitted.

Mr. CLIFFE. I think that is correct, with one exception that I think you should know: in some cases fabricators buy material that has passed beyond the ingot stage, which has been partly fabricated, and in those fabricating facilities of the Aluminum Co. there were some bottlenecks developed and shipments were not up to the amounts that their customers would like to have in some instances.

Mr. FULTON. The only thing I wanted to be sure of was in fabrication where the Aluminum Co. is both the seller of the material to its competitors and a competitor with them in fabricating it, that there was no preference of one over the other which was in any way permitted to continue by reason of these priorities.

Mr. CLIFFE. I shall go further than that statement, sir. The Aluminum Co. voluntarily made reductions in its fabricating departments for civilian use.

Mr. FULTON. So did everybody else, didn't they?

Mr. CLIFFE. Let me finish the statement, please. They made reductions that were greater than the restrictions called for under the order.

Mr. FULTON. I see.

Mr. CLIFFE. That, I think, is an important point.

Mr. FULTON. That was because they had aluminum which they couldn't apply to it or because their plants didn't have sufficient aluminum to fill other orders.

Mr. CLIFFE. That was because they felt, if I may speak for them—that it was wise for their production for civilian purposes to be restricted to a greater extent than the lack of metal was forcing other fabricators to restrict their civilian production, as a matter of policy.

Mr. FULTON. My question was, did they have the metal to go ahead at greater length than they did?

Mr. CLIFFE. They had all the metal there was, and if they had seen fit to devote the metal to their fabricating department, they could have done so.

Mr. FULTON. And it is your opinion, on studies you have made, that they gave their fabricating competitors more metal proportionate to their needs than the Aluminum Co. reserved for itself?

Mr. CLIFFE. That is correct as to the companies which I have studied. I have studied their relations with the Reynolds Co. particularly.

Mr. FULTON. And will you furnish me the information with respect to what companies you have studied and the extent of the study, that is, the basis upon which it was made? <sup>1</sup>

That is all.

The CHAIRMAN. Mr. Cliffe, before we recess, I would like for you to tell the committee what your connections were before you came to the O. P. M.

Mr. CLIFFE. Yes, sir. For the 20½ years before I came to O. P. M., I had been an employee and later an officer of the General Electric Co., Schenectady, N. Y. At the present time I am an assistant comptroller of that company. The company has donated my services to O. P. M.

The CHAIRMAN. Thank you. The committee will—

Senator MEAD (interposing). Mr. Chairman, if I may, I want the record to indicate that I didn't attempt in any way to impugn the patriotic motives of that distinguished educator who is the chairman of that particular committee, that has to do with these priorities. I imagine that he is doing a very fine, a very patriotic task. But I make the point that it occurs to me that it would be more ethical if the voting members of the various boards were not directly connected with the industry that will be benefited or hurt by their decision, and I make that point not only for their protection, but it would be much easier for me and for the members of the committee and for the Members of Congress generally—this will probably be discussed for several years after this emergency is over—to understand the discrepancies in the priorities. For instance, cotton, silk, woolen and worsted goods, knit goods, carpets, rugs, hats, and so on, are given 10 percent, while rayon and nylon and industrial chemicals, miscellaneous chemicals, automobiles, service cars, motorcycles, and motion pictures are allowed 60 percent.

It occurs to me that in view of the fact that two of the voting members of a board had to do with this arrangement, that somebody might say they were very careful about their own business and very careless about the other fellow's possibilities.

Mr. CLIFFE. May I comment on that just briefly, Senator? If the decisions were made by these committees, I think the situation that you outline might very well arise. I would like to emphasize, however, that all of the decisions are made by the impartial chairman. Obviously, he must get information and viewpoint from those who know something about the production and the use of aluminum, but the decisions are made by the impartial chairman. Considerable

<sup>1</sup> In a letter dated May 29, 1941, Mr. Cliffe transmitted "Exhibit A—Details of Reduction in Aluminum Used for Civilian Purposes by (a) Reynolds Metals Co. and (b) Aluminum Co. of America (fabricating departments)," included in the appendix on p. 970.



effort was taken in order to find a man of sufficient ability to do that.

Mr. FULTON. Mr. Cliffe, would you furnish us with a copy of the information that was given to the chairman with respect to this particular distinction that Senator Mead has made, showing the exact attention that was called on this discrepancy to that chairman so that he could rule on it?

Mr. CLIFFE. I should like to point out, sir, that this was discussed at length in the meetings of the committee, and of subcommittees, at which the chairman was present, as all of these items were discussed.

Mr. FULTON. Then would you furnish us with a transcript of the remarks with respect to this matter?

Mr. CLIFFE. I should be glad to furnish you with the minutes.<sup>1</sup> They are not verbatim transcripts of everything that was said.

Mr. FULTON. What I had in mind was would you show us exactly on what information the chairman was asked to rule on that point.

Mr. CLIFFE. Yes, sir.

The CHAIRMAN. I want to make an announcement for the benefit of the committee. We have had some discussion on the propriety of the usual procedure of swearing witnesses before this committee. We haven't done that up to date. It has been suggested by several members of the committee that from now on we should follow the usual Senate procedure and swear the witnesses. I think we will probably follow that procedure from now on. That is no reflection on any witnesses that may come or that may have already testified before this committee. It is merely a procedure that is customary before Senate committees.

Mr. CLIFFE. I would be very glad to comply now and make it retroactive if you wish.

The CHAIRMAN. No; I don't care to do that.

Senator BREWSTER. I will make it clear that that wasn't suggested for your testimony.

The CHAIRMAN. Mr. Cliffe will be followed this afternoon at 2:30 by Mr. Gibbons of the Aluminum Co. of America, and he will be followed by Mr. Holden, of O. P. M.

Mr. CLIFFE. Do you wish me to be here at 2:30 to resume?

The CHAIRMAN. I think you had probably better be here, Mr. Cliffe. There may be some questions that members of the committee will wish to ask.

(Whereupon, at 12:50 p. m., the committee recessed until 2:30 o'clock p. m., of the same day.)

#### AFTERNOON SESSION

The hearing was resumed at 2:35 o'clock p. m., upon the expiration of the recess, Senator Truman presiding.

<sup>1</sup> "Exhibit C—Extracts from minutes of meetings of Aluminum and Magnesium Priorities Committee concerning civilian-priority classifications," included in the appendix on p. 973.

**TESTIMONY OF FRANK B. CLIFFE, PRIORITIES DIVISION, OFFICE OF PRODUCTION MANAGEMENT—Resumed**

Mr. FULTON. Mr. Cliffe, we have one or two more questions.

With respect to your question about the flow metal and the lack of any restriction, that is our question on that matter, I note on page 4, No. 6 of the priorities, that there is a statement here that aluminum which, on that date (March 22), has been fabricated beyond the ingot and is of such special character as not to be allocable under the rules laid down in this order, may be completed and shipped without regard to the instructions herein contained. Doesn't that mean that they were free to complete and ship without regard to the priorities any flow metal that they might have had?

Mr. CLIFFE. That ruling was applied to the companies that had fabricated material and who wished to complete existing commitments. In other words, where they had shaped the metal in such a way that it was of use for only one purpose, and could not be reused for defense purposes without reworking and a loss of whatever had been expended upon it in the form of labor.

Mr. FULTON. I am not suggesting that it should have been reworked, but I am asking if it isn't true that the companies which had large supplies of flow metal which they had caused to be worked up in part were not, as to such metals, completely exempted from priority, and allowed to furnish whatever they desired to furnish to their customers.

Mr. CLIFFE. That was correct, at least in the case of the Reynolds Metals Co. They exercised that paragraph and did make shipments after March 21, in the month of April, and again in the month of May beyond the percentages that would have been authorized under the general percentage program of the priority order.

Mr. FULTON. Now what I am asking is this: Did the Reynolds Metals inventory compare with the inventory of the Aluminum Co. in flow metals, proportionate to their customers' needs?

Mr. CLIFFE. I should say that there was not any major difference in relation to the normal business done by the two companies.

Mr. FULTON. And have you investigated that factor?

Mr. CLIFFE. I have that—that has been investigated. I have not the figures with me on it.

Mr. FULTON. But you would say that compared to the business which they had had, say in the preceding year, the inventory of the Reynolds Metals people in flow on this date would have been at least as great, proportionately, as that of the Aluminum Co.?

Mr. CLIFFE. I think that is a fair overall statement.

Mr. FULTON. Who first suggested putting this paragraph 6 into the priorities? From what source?

Mr. CLIFFE. That, if I recall, was a suggestion that I made without any indication from any outside source, as being a reasonable procedure. After I had thought of the possibility I discussed it with representatives of several companies and found that they were generally agreed that that was a good point at which to draw the line for changing from no control to a priorities control basis.

Mr. FULTON. So it was a suggestion emanating from you and not from any other source?

Mr. CLIFFE. To the best of my recollection, yes, sir.

Mr. FULTON. And with respect to Mr. Farrell and Mr. Barney, of the Fairmont Aluminum Co. and the Frigidaire Cos., respectively, can you tell me who first suggested the names of those persons to serve on the committee determining the priorities with respect to aluminum?

Mr. CLIFFE. No, sir, I do not know who first suggested their names. The committees were organized largely through the activities of a man on Mr. Stettinius's staff who contacted large numbers of individuals seeking for ones who were both qualified and willing to devote the necessary time to this committee work.

Mr. FULTON. Did Mr. Adams have any participation in that?

Mr. CLIFFE. Mr. Adams was the man to whom I refer, who did much of the organization work of these advisory committees, and again let me point out that these are committees that discuss the problem, and then the impartial chairman, in the case of aluminum Dr. Hopkins, makes the decision and makes them effective.

Mr. FULTON. But it was Mr. Adams, President of the Air Reduction Co., who suggested the names of the persons on the committee?

Mr. CLIFFE. He had as his primary responsibility during January and February the organization of these committees.

Mr. FULTON. Then the answer would be "Yes"?

Mr. CLIFFE. Will you restate the question, please?

Mr. FULTON. Was it Mr. Adams who suggested the names of the persons who were on this committee?

Mr. CLIFFE. I do not know who first suggested them, that is, whether Mr. Adams thought of them or whether they were suggested to him by someone else and he cleared them.

Mr. FULTON. Anyhow, was it Mr. Adams who determined who would be the persons to be recommended?

Mr. CLIFFE. He made nominations and, as I understand it, his nominations were reviewed by Mr. Stettinius.

Mr. FULTON. Do you know whether anyone on behalf of the Aluminum Co. suggested those names to Mr. Adams?

Mr. CLIFFE. I do not know.

Mr. FULTON. Would you know whether it was so or it was not so, or just that you have no information?

Mr. CLIFFE. I have no information.<sup>1</sup> That was not part of my responsibility.

The CHAIRMAN. That is all, Mr. Cliffe.

(The witness, Mr. Cliffe, was excused.)

The CHAIRMAN. Mr. Gibbons.

### TESTIMONY OF G. R. GIBBONS, SENIOR VICE PRESIDENT, ALUMINUM CO. OF AMERICA

The CHAIRMAN. Mr. Gibbons, do you solemnly swear to tell the truth, the whole truth, and nothing but the truth, in what you say to this committee?

Mr. GIBBONS. I do.

The CHAIRMAN. State your name and business connections.

<sup>1</sup> Mr. Cliffe subsequently submitted "Exhibit B—Chronological Report on Organization of Aluminum and Magnesium Priorities Committee," included in the appendix on p. 972.



Mr. GIBBONS. G. R. Gibbons, senior vice president, Aluminum Co. of America.

Mr. FULTON. Mr. Gibbons, I understood you were senior vice president of the Aluminum Co.

Mr. GIBBONS. Yes.

Mr. FULTON. You heard the question that was addressed with respect to whether anyone on behalf of the Aluminum Co. suggested names to Mr. Adams as being persons that they would recommend for the members of this committee to determine priorities, did you not?

Mr. GIBBONS. Yes; I did.

Mr. FULTON. Did the Aluminum Co. or anyone on its behalf make any recommendation to Mr. Adams, or have any conversation with him with respect to those persons or any other persons?

Mr. GIBBONS. Not that I know of.

Mr. FULTON. Would you know if it were done?

Mr. GIBBONS. I think I would. I think we were consulted to the extent of inquiring, on the part of someone in O. P. M., as to some of the important people in the industry, and I believe it was even suggested that some of our people might go on this committee, and we, as I recall, advised that we thought that we should not go on the committee, but whether we suggested these individual names I do not know, Mr. Fulton.

Mr. FULTON. Who asked you to name persons from your organization who might go on the committee?

Mr. GIBBONS. I do not know. I was not consulted and I had no personal contact with the matter.

Mr. FULTON. But you know that your company was consulted?

Mr. GIBBONS. I heard someone say in the early days of the Defense Commission that there was under consideration a committee to act, I think, in the capacity of a priority committee. In fact, I think I read it in the press first. Then I heard someone say—I don't remember who—that we had discussed it, but I have no idea who. I suspect it might have been our Washington representative, who might have contacted somebody in the National Defense Commission and talked to them about it.

Mr. FULTON. Do you know whether those names, either of them, originated with a suggestion by anyone on behalf of your company?

Mr. GIBBONS. I think I would know it, probably. I don't believe they did.

#### PRODUCTION BY ALUMINUM CO. OF AMERICA

Mr. FULTON. Would you tell me how much production capacity the Aluminum Co. had in 1939 as to the reduction of alumina to aluminum?

Mr. GIBBONS. I have some figures I will refer to to be accurate.

Mr. FULTON. You may, of course, consult any record you have. It would be more accurate than a recollection. What would be the production?

Mr. GIBBONS. We had approximately 300,000,000 pounds' production at the beginning of the year 1939, and approximately 350,000,000 pounds—at the rate of, you understand—at the end of the year.

Mr. FULTON. That would be capacity over the year, having in mind the fact that some plants could operate most efficiently during the winter and others during the summer?

Mr. GIBBONS. Correct. We produced 327,000,000 pounds that year.

Mr. FULTON. So you were operating close to the total capacity of your plants in the sense of the commercially usable periods of time that you could use the plants?

Mr. GIBBONS. That is correct, sir.

Mr. FULTON. Ice would interfere in the North, and in the South rainfall would be less frequent in the summer?

Mr. GIBBONS. Correct.

Mr. FULTON. And you balanced off production to get a total capacity? Now, that, of course, is aluminum. What was your capacity for the production of alumina from bauxite?

Mr. GIBBONS. Our actual production would be related to the need for alumina as established by the aluminum we were making, because our storage capacity to store alumina in excess of what we produce is limited. We would, therefore, have produced in 1939 approximately 650,000,000 to 700,000,000 pounds of alumina, because that would make the aluminum which we made in that year and allow for the excess production required for other sales of alumina. In July—no, in May of 1939, we raised the output, or capacity, of the Mobile alumina plant from 500,000 pounds per day to 800,000 pounds per day. During 1939 we expended something over \$600,000 at the East St. Louis alumina plant to augment its production capacity.

Mr. FULTON. Then I understand that you had your alumina capacity built along lines to take care of the aluminum which you could reduce.

Mr. GIBBONS. That is right.

Mr. FULTON. And you built alumina capacity only as you needed it for further aluminum reduction?

Mr. GIBBONS. That is correct.

Mr. FULTON. And the capacity was roughly the same as the production of alumina, is that right?

Mr. GIBBONS. That is approximately correct, with this modification. The increase in capacity of a large plant such as our alumina plant goes up rather like steps than like an inclined plane. We would jump from, as I said, 500,000 per day to 800,000 per day. We might not operate at the increased capacity until it was needed. The next jump, for example, at the Mobile plant was from 800,000 to 1,500,000. That installed capacity probably was in excess of the immediate needs as of the time when it was installed, but in anticipation of future needs, so that our increasing capacity in these alumina plants goes up—

Mr. FULTON. Like steps of a stairs?

Mr. GIBBONS. Like steps, and is usually considerably in excess of the immediate requirements for the production of aluminum.

Mr. FULTON. But in general, you attempt to have a capacity which would be about the same as production, except that you can't build small plants so that when you add capacity for a time you have a slight excess until you catch up, is that it?

Mr. GIBBONS. It may be a slight or it may be a large excess, but that in general is a correct statement of the situation.

Mr. FULTON. But as to both aluminum and alumina, the Aluminum Co. had related the production to the capacity, so that there would not be an excess of capacity and there would not be, as for example in the steel industry, operations at, say, 40 or 50 percent of capacity, as they sometimes have.

Mr. GIBBONS. That is not quite the correct way to put it, I think, Mr. Fulton.

Mr. FULTON. Was there excess?

Mr. GIBBONS. You observed the increase that I spoke of, from 800,000 a day to 1,500,000. That is almost a 100-percent increase. That increase was in anticipation, no doubt, of the time when the aluminum requirement would call for that increased alumina capacity, and no doubt for several months that capacity was not in operation.

Mr. FULTON. But my question was, did the Aluminum Co. have excess of capacity over production, and I understood from your earlier testimony that it did not, except to a minor extent that obviously would be necessary.

Mr. GIBBONS. The word "minor" was yours. I haven't used the word "minor."

Mr. FULTON. Then let's see. As I understood you, you had 350,000,000 pounds of capacity at the end of the year 1939, and only 300,000,000 pounds at the beginning, for the reduction of alumina to aluminum, and you produced 327,000,000 pounds, or more than you could have produced without increasing your capacity.

Now, am I not correct in assuming—

Mr. GIBBONS. You said more than we could have produced without increasing our capacity.

Mr. FULTON. Isn't that true?

Mr. GIBBONS. No; that is naturally impossible, because one cannot produce more than he has capacity to produce. Your statement implies that.

Mr. FULTON. You produced more during the year 1939 than you had annual capacity at the end of the year, and that is because at the end of the year you had brought in another 50,000,000 of capacity.

Mr. GIBBONS. Your language is not clear to me, but I will endeavor to state what the facts are. At the beginning of the year 1939 we could produce aluminum at the rate of somewhat in excess of 300,000,000 pounds per annum. At the end of 1939 we had capacity to produce aluminum at the rate of 350,000,000 pounds, or slightly more.

Mr. FULTON. And isn't it true, then, that you produced more aluminum in 1939 than you had capacity at the beginning of the year to produce?

Mr. GIBBONS. We increased our capacity some during the year 1939, yes; that is correct.

Mr. FULTON. Isn't the answer "Yes," as you said at the end, not "We increased our capacity"?

Mr. GIBBONS. The answer is "Yes," but your questions are so difficult for me to comprehend that I want to be sure the record is clear as to what is meant by my answers.

Mr. FULTON. But the answer is clearly "Yes," is it not?

Mr. GIBBONS. I think I gave a clear answer to that.

Mr. FULTON. Wouldn't a clear answer have been "Yes"?

Mr. GIBBONS. No clearer than I gave, I hope.



Mr. FULTON. At least it would have been shorter.

Mr. GIBBONS. I think we are quibbling and wasting the gentlemen's time.

Mr. FULTON. What I had in mind is, isn't it true that the capacity of the Aluminum Co. only very slightly exceeded the production that it actually produced, and that the Aluminum Co. did not have any excess unused capacity which could furnish a cushion for defense needs?

Mr. GIBBONS. In 1939? We produced all the aluminum we had capacity to produce in 1939, every pound.

The CHAIRMAN. That is what we are getting at. There was no surplus capacity in 1939?

Mr. GIBBONS. Quite right. That is a very clear question.

The CHAIRMAN. And you did produce to your capacity?

Mr. GIBBONS. The answer is, we did.

Mr. FULTON. You did not, you mean. The answer is, you did not have the excess capacity.

Mr. GIBBONS. We had no excess capacity in 1939 that we didn't use, of aluminum.

Mr. FULTON. And in the case of alumina, again the ratio of production to capacity is comparable, is it not?

Mr. GIBBONS. That is correct.

#### BAUXITE STOCKS

Mr. FULTON. Now, with respect to bauxite, did you have in this country any large store or stock pile of bauxite at the end of 1939?

Mr. GIBBONS. We had about 62,000 tons in stock.

The CHAIRMAN. How much aluminum would that make?

Mr. GIBBONS. About 32,000,000 pounds.

The CHAIRMAN. That is about a month's supply?

Mr. GIBBONS. That is about what we have storage capacity for, about a month's supply.

Mr. FULTON. So that there really is no backlog of bauxite in this country now except what is in the ground in Arkansas?

Mr. GIBBONS. That is correct, except the stock has been increased now to about 131,000 tons. We have been endeavoring very earnestly to increase the stock. We were asked to do so.

The CHAIRMAN. Are there any other deposits of bauxite in the United States of the comparative grade of those in Arkansas, besides those that are there?

Mr. GIBBONS. No, sir.

The CHAIRMAN. Under that condition, unless we want to exhaust our own resources we have to import from Dutch Guiana?

Mr. GIBBONS. We do, and it is certainly, I think, an exceedingly wise national policy to do so.

Senator WALLGREN. Is there any possible substitute for bauxite?

Mr. GIBBONS. Alunite is a possible substitute. Clays have been used in Germany under emergency conditions.

Senator WALLGREN. Alunite is available in this country?

Mr. GIBBONS. It is, in Utah and the Northwest.

Senator WALLGREN. In large quantities?

Mr. GIBBONS. I am not familiar with the quantities.

Senator WALLGREN. You have experimented to some extent with the use of it?

Mr. GIBBONS. Yes; we have.

The CHAIRMAN. What is the difference in the cost of production between alunite and bauxite?

Mr. GIBBONS. I cannot give you an accurate figure, but there are two conditions relating to the use of alunite which I hope some day will be overcome and no doubt will be. One is that the alumina made from the alunite is not a pure material under any process that has thus far been commercially used. I haven't the slightest doubt that the scientists will lick that problem like they do all of them. The cost of alumina from alunite is quite a little in excess—I would think it might be 50, perhaps 100 percent, greater, maybe more than that—of alumina produced from bauxite under any practices that have been engaged in, but it should be borne in mind that there has never been any real commercial alunite venture.

Senator WALLGREN. What if, in some manner, the source of supply were shut off from Dutch Guiana?

Mr. GIBBONS. We could live in this country for 6 or 8 or 10 years, I think—I would be glad to give you figures on that subject.

Senator WALLGREN. Just approximately?

Mr. GIBBONS. We could live for 6 or 8 or 10 years under the emergency conditions as they are now contemplated, so far as I know them.

Senator WALLGREN. By using Arkansas bauxite?

Mr. GIBBONS. Arkansas bauxite. We have in Arkansas, we believe, from five to six million tons of high-grade bauxite. We think there are in Arkansas perhaps twenty-five to thirty million tons of so-called low-grade bauxite. That low-grade bauxite would be the first material, I think, to be called upon by the Nation when the high-grade bauxite is exhausted. It could be used to make alumina from. It is a great comfort, I think, to us to realize that, because our bottleneck, of course, is shipping, and should something happen that would make shipping even more serious, we would be safe over that long a period of time.

Senator WALLGREN. It would be rather unwise to depend solely on this source of supply in Dutch Guiana?

Mr. GIBBONS. Unless we can maintain our shipping lines, yes. Please understand, Senator, that I am quite convinced that with the 30,000,000 tons of low-grade bauxite and the five to six million tons of high-grade bauxite we could get along for—I would be glad to figure it, but let me make a guess—10 years at the present emergency rate of requirement.

Senator WALLGREN. One billion four hundred million a year?

Mr. GIBBONS. At 1,400,000,000 a year, sir. Would you care to have my figure for you roughly?

Mr. FULTON. I think it was figured out yesterday, about 22½ years on 5,000,000 tons. Now as to that 30,000,000-ton figure you gave, I was interested in that because the Bureau of Mines' report is that it was only about 8,000,000 tons, including the 5,000,000, and I suppose that the balance of the 27,000,000 would be—or which they didn't regard as even secondary bauxite, is that correct?

Mr. GIBBONS. No.

Mr. FULTON. Would you differ with the Bureau of Mines' figures of about eight to nine million tons?

Mr. GIBBONS. I would adhere to the figures I gave you as being our best estimate of the situation.

Mr. FULTON. And you think there are 30,000,000 tons of bauxite which could be regarded as good secondary material?

Mr. GIBBONS. Well, I want you to understand, Mr. Fulton, that we have never explored this. We make that statement out of long experience in the bauxite field, and I hope nobody will feel that I am making accurate statements when I say that we think there are 30,000,000 tons of low-grade bauxite in Arkansas that might be available for use in producing aluminum. That statement is simply made by our people who have been working in Arkansas with bauxites for 15, 20, or 30 years, and all we have done is to ask them to please give an estimate as to what you think is available in low-grade bauxite.

Senator WALLGREN. Are they your holdings?

Mr. GIBBONS. About 10,000,000 of those 30,000,000 tons, Senator, are our holdings.

Senator WALLGREN. We now have a new plant starting to manufacture aluminum; they have holdings, too, have they?

Mr. GIBBONS. You refer to the Reynolds Co.? I have no idea, sir, what their holdings are.

Senator WALLGREN. Have you been furnishing them with bauxite?

Mr. GIBBONS. No, sir; we have not.

Senator WALLGREN. You have been furnishing other processing plants with bauxite?

Mr. GIBBONS. We furnish the Norton Co., which makes grinding wheels, with bauxite and we furnish the General Chemical Co., which makes alum and allied materials, their bauxite. The amount of bauxite they use, however, is not substantial.

Senator WALLGREN. Well, they process it into aluminum, do they?

Mr. GIBBONS. Oh, no, they process it, the Norton Co., into grinding wheels and the General Chemical Co. into alums and materials of that sort.

Senator WALLGREN. Other materials?

Mr. GIBBONS. That is correct, sir.

The CHAIRMAN. I wanted to know the name of the aluminum company of Canada.

Mr. GIBBONS. There is a company, which is a holding company, known as Aluminium, Ltd. They pronounce it with the extra "i"; that is the English way. Aluminium, Ltd., I think is just a holding company; the producing company in Canada, that actually produces aluminum, owns plants, is known as the Aluminum Co. of Canada, Ltd.

The CHAIRMAN. And the German company is the Farben Co.?

Mr. GIBBONS. I don't think so; I don't believe the Farben Co. makes aluminum, though I don't know; they may. The I. G. Farben Co., I have always understood—I was never in Germany—is a large chemical concern more like, for example, the du Pont Co.

The CHAIRMAN. What is the Aluminum Co. of Germany?

Mr. GIBBONS. It is a Government-owned, or partially owned plant, and one of them is the Vereinigte Aluminium Werke. I think there is a second company. Many years ago that was the principal German company. What its status is today I have no idea, sir.



Senator WALLGREN. That is Government-owned and controlled?

Mr. GIBBONS. I think it is, though there was a time when there were some civilian stockholders, but that is so many years ago I have no idea—my attorney, Mr. Ingersoll, tells me that is correct, as disclosed by testimony in lawsuits.

Senator WALLGREN. The principal company in Germany is Government-owned and controlled?

Mr. GIBBONS. I suspect that is true, sir.

The CHAIRMAN. There is a French company, also, isn't there?

Mr. GIBBONS. There is, sir; yes.

The CHAIRMAN. Was there an agreement between the French company and the Canadian company and the German company and the Aluminum Co. of America on the distribution of the world markets?

Mr. GIBBONS. No, sir; not since 1912, I think, that was the last agreement, and that agreement did not refer to the United States but merely referred to that part of the world outside of the United States.

The CHAIRMAN. Referred to that part of the world outside of the United States, and that part in the United States was left to the Aluminum Co. of America?

Mr. GIBBONS. No; there have always been a great many importations, and at that time it was distinctly true that there were importations from all of the foreign producers.

The CHAIRMAN. Who did that importing?

Mr. GIBBONS. The British company, the German company, the French company, and the Swiss company.

The CHAIRMAN. Imported aluminum into America?

Mr. GIBBONS. Correct, sir.

The CHAIRMAN. For distribution to the American fabricators?

Mr. GIBBONS. Yes, sir.

The CHAIRMAN. And did they pay a royalty to the Aluminum Co. of America for that privilege?

Mr. GIBBONS. No, sir; never.

The CHAIRMAN. I understood that these four companies controlled most of the patents necessary for the fabrication of aluminum products and for the manufacture of aluminum through these aluminum plants that turned the bauxite into alumina; is that correct?

Mr. GIBBONS. No, Senator; that is not correct. There has been no patent, certainly in the United States, and so far as I know, anywhere in the world, since 1909, which had the slightest effect or limitation upon the production of aluminum. Everyone has been free to produce aluminum since the Bradley patent, so-called, expired in 1909, and there are no patents covering it at present.

The CHAIRMAN. That was true if they could get the bauxite?

Mr. GIBBONS. There is more bauxite in the world than almost any ore I know of.

The CHAIRMAN. But it is rather hard to get?

Mr. GIBBONS. No, sir; quite the reverse.

The CHAIRMAN. It is about the only high-grade mine of that product that is in the control of the Aluminum Co. of America in Arkansas; isn't that true?

Mr. GIBBONS. No; that is not quite accurate, either, Senator. We think we own about 60 percent of the so-called high-grade bauxite which I alluded to as comprising about four to five million tons; it is hard to guess what is under the ground, of course.

The CHAIRMAN. I went through that mine and they told me that you controlled all the high-grade bauxite in the United States.

Mr. GIBBONS. We shall have to tell you the truth, then; I am under oath and they were not, you see. We think that we control about 60 percent, but there, again, we don't always know what the other fellow has, of course; but our best estimate is that the high-grade bauxite which we own in Arkansas, which as you perceive and as Mr. Fulton has said, would only last  $2\frac{1}{2}$  years if we had to use it—we think it is about 60 percent of the high-grade bauxite that is in Arkansas.

The CHAIRMAN. You control those mines in Dutch Guiana, too?

Mr. GIBBONS. We control our mines, but there are others we do not control.

The CHAIRMAN. How many others are there?

Mr. GIBBONS. I say others; there are other deposits; I think there are one or two other actual either miners or people who have bought up bauxite lands. We went down there about 25 years ago.

The CHAIRMAN. No one else is mining bauxite in Dutch Guiana but the Aluminum Co. of America?

Mr. GIBBONS. No, sir.

The CHAIRMAN. And that is also true in Brazil, isn't it? You control the bauxite mines there?

Mr. GIBBONS. No; we have none whatever in Brazil; there is a great deal of bauxite in Brazil, however, so I am told.

The CHAIRMAN. I have been informed there were large deposits in Brazil and the Aluminum Co. of America controlled it.

Mr. GIBBONS. We haven't a nickel's worth there.

The CHAIRMAN. I am interested in another agreement which I have read a great deal about between the Aluminum Co. of America and the Canadian Aluminum Co. and the German and French companies, in regard to manganese.

Mr. GIBBONS. Magnesium?

The CHAIRMAN. Yes. I understand there was an agreement between those companies that they would control the world supply and that the Aluminum Co. of America would be allowed to make 4,000 tons a month for our consumption is that true?

Mr. GIBBONS. No, sir. I know practically nothing about the magnesium business.

The CHAIRMAN. Magnesium is a very essential metal so far as the manufacture of airplanes and fuses and bombs and things of that kind are concerned, isn't it?

Mr. GIBBONS. It is particularly essential in bombs and flares and tracer bullets; it is not essential in airplanes.

The CHAIRMAN. It is an essential alloy in aluminum?

Mr. GIBBONS. You are right; it is essential in airplanes to the degree that the aluminum alloys mostly used in airplanes use magnesium as an alloy in those aluminum alloys.

The CHAIRMAN. There was an attempt to limit the tonnage to which America could be entitled, so far as the Aluminum Co. of America was concerned?

Mr. GIBBONS. That may have been, sir, but I must confess I don't know that is a fact, and it isn't true now, because I know.

The CHAIRMAN. Who in your company would know about such an agreement?

Mr. GIBBONS. You see the magnesium company is a separately operated company, and I think the president of that company, or vice president, is Mr. Brown, who would know.

Mr. FULTON. What holdings does the Aluminum Co. directly or indirectly hold in this American Magnesium Co.?

Mr. GIBBONS. Until about 6 or 8 months ago we owned 50 percent. At that time we purchased the entire stock for the reason that the Government had indicated the need for much greater magnesium fabricating facilities and our partners in that company, the owners of the other 50 percent—

Mr. FULTON (interposing). Were what company?

Mr. GIBBONS (continuing). Were unwilling to put up the necessary money to increase the plants. You see, we have increased our magnesium fabricating facilities about 12 or 15 times since the emergency began.

The CHAIRMAN. What was that other company, Dow Chemical Co.?

Mr. GIBBONS. No; it is not the Dow.

The CHAIRMAN. Was it a German company?

Mr. GIBBONS. It is the General Aniline & Film Co.

The CHAIRMAN. Is that a German company?

Mr. GIBBONS. I think it is an American company.

Senator WALLGREN. In Los Angeles, aren't they?

Mr. GIBBONS. I think it is an American company. I interrupted you there, sir, and we at that time, being confronted as we conceived to be the fact, with the necessity of going ahead and increasing the foundries, particularly, because this required quite a large investment, relatively, and these other people being unwilling to do it, we simply said, "Well, either put up or shut up," that is about what we said, and we bought them out.

#### HYDROELECTRIC POWER USED IN PRODUCTION OF ALUMINUM

Senator WALLGREN. Does the Aluminum Co. own any water power electrical producing companies in the country of its own?

Mr. GIBBONS. We produce water power, Senator, not so much ourselves, but always as a separate company. We do; I think the answer to that is, we do, yes; the Aluminum Co. of America itself may produce hydroelectric power, or one of its subsidiaries may; I think most of it happens to be produced by a subsidiary, but it is a 100 percent subsidiary.

Senator WALLGREN. Have you made any effort to increase this production since this emergency developed?

Mr. GIBBONS. Oh, we have made efforts that were, we thought, all that was within our capacity and we are still making them; you can't imagine how frantic we are in the aluminum business.

Senator WALLGREN. I understand you decided to withdraw your efforts on your own part and accept the efforts of the Federal Government in that direction. Is that true?



Mr. GIBBONS. No, that is not quite true, Senator. These are the facts. We have increased our output by about  $2\frac{1}{2}$  times—I think that is incorrectly expressed. We have increased our output from approximately 300 to 725 million pounds per annum, though that 725 will not be effective until about June of 1942. We have endeavored to increase beyond that, but the bottleneck is to get power; aluminum requires a great deal of power, as you know, and power is scarce, and we have struggled and made every effort we thought we could make to get power, and we have offered the Government our willingness, our finances, our management, to make as much more aluminum as they think we should make.

The Government thinks, I believe, that we perhaps shouldn't make any more but be that as it may we stand willing to do anything they want us to do, but at the moment we aren't increasing our capacity today beyond that 725, though we hope to increase it, I will say, by another 100 million.

Senator WALLGREN. Was it on your advice last year that the O. P. M. was informed that 25,000,000 pounds would be all they would need last year?

Mr. GIBBONS. I don't know, sir; there has been a great controversy over that.

Senator WALLGREN. I mean 25,000,000 pounds a month.

Mr. GIBBONS. I understand what you mean, sir. I think we, like everyone else, were a little deceived by the outlook at that time. We thought there was going to be less need than turned out to be the case.

The CHAIRMAN. We have bulletins here, issued by O. P. M., in which they say the production of aluminum is ample and we will not need any more; and then they come down here and tell us no longer ago than yesterday that they have made a mistake and they think they need 1,200,000,000 pounds and may need 1,400,000,000 pounds, and may need twice that much. Now on whose advice was that?

Mr. GIBBONS. I know that is the case; I read it in the paper, and I understand it, but after all I don't think they or we or anyone—

The CHAIRMAN (interposing). The greatest authority on aluminum in America is the Aluminum Co., isn't it?

Mr. GIBBONS. I won't profess that; maybe we are. I think you understand much better than I do, sir, that this program has just gone up like this [indicating with upward motion of hand].

The CHAIRMAN. I appreciate that, but we also had the example of other programs that have gone up in like manner.

Mr. GIBBONS. There is just as great shortage in zinc, lead, tin, and nickel as there is in aluminum; there is a shortage in airplanes; there is a shortage in legislation, if you will permit me to say so; you gentlemen are working nights, days, and Sundays to create legislation that we need.

The CHAIRMAN. I appreciate that very highly, but here is the situation that is facing us; we need aluminum. You gentlemen, up to date, have controlled it. What procedure have you followed to meet a situation that undoubtedly is facing us now, besides the procedure to continue the control of aluminum now and in the future?

Mr. GIBBONS. I wish you hadn't put the tail on that dog. We have no desire, sir—we are making no effort to control the aluminum now or in the future.

The CHAIRMAN. I hope not.

Mr. GIBBONS. Well, that is a fact, sir. We know it is impossible to do so; we think it is very unwise to do so. God knows it has been the cause of a great deal of grief to us, as anyone knows who has passed through it like I have, but we started in in 1939—in fact, in 1938—in anticipation of greater needs for aluminum, brought to us by the observation of what was going on in Europe, to increase our plants. We have spent or contracted to spend nearly \$200,000,000 of our own money to do this; we have increased our output by, as I said, one and a half times, approximately.

I think I am not inaccurate in saying that no corporation in the United States has increased its service to the public, has done more in the way of stepping right up and doing what it could for the defense in expending its own money or someone else's money, and in doing what it could to increase its output. Our employees have jumped from less than 25,000 to over 50,000. As I say, our capital has practically been doubled in what we have in this business. We have gotten to the end of our rope; we can't borrow any more money; we have spent \$200,000,000 and our credit is still good, we hope; we hope we will be able to finance this; we haven't financed it.

The CHAIRMAN. Have you talked to Mr. Jones?

Mr. GIBBONS. We haven't talked to Mr. Jones, but we are going to have to talk to him, if he wants us to go any further; we have to talk to somebody because we are about at the end of our string; we have offered to build, to design and build, plants for the United States Government, and if they want to operate them; we have offered to design and build them and we have offered to operate them and to do anything we possibly can, and if someone will get us power, if you will get us the same little juice that is in those lamps up there, we will make all the aluminum you want, sir, and it can be done in time to meet this emergency.

Mr. FULTON. On that very important question of power, just how many kilowatt-hours has the Aluminum Co. produced at their own expense, in addition to what they had before? I understood about 50,000 kilowatt-hours, isn't it?

Mr. GIBBONS. I don't know.

Mr. FULTON. Didn't you tell me that you had one plant or one project which would produce about 50,000 kilowatt-hours?

Mr. GIBBONS. We always seem to get into petty statistics when you come on, Mr. Fulton.

Mr. FULTON. I am afraid so.

The CHAIRMAN. Fifty thousand kilowatt-hours is not so very petty.

Mr. GIBBONS. Very trivial, sir. I think what Mr. Fulton alludes to is the fact that in 1939, I think it was, we began to lay plans to develop two water powers, which we own, in the Great Smoky Mountains, known as Glenville and Nantahala. Those two projects require an investment of about \$15,000,000. They will produce about 60,000 kilowatts. I was wrong by 10,000 yesterday, Mr. Fulton. I checked that. They will produce about 60,000 kilowatts and will enable us to put on two more pot rooms, which means 60,000,000 pounds more of aluminum. One of those pot rooms will come in in September of 1941 and the other in July of 1942. That is the only hydroelectric development which the Aluminum Co. of America itself has undertaken to meet the emergency, and since the emergency confronted us.

Mr. FULTON. Then the short answer to my question was that it was 60,000 kilowatts and that means that the total quantity of aluminum, using your figures of 350,000,000 capacity and the 60,000,000 capacity that you expect from this project, would be 410,000,000, and without Government assistance furnishing you with what you call the juice. The Aluminum Co. would be capable of furnishing very much less than one-third of the amount which they estimate we need for our military requirements; is that correct?

Mr. GIBBONS. That is a fairly accurate though an exceedingly misrepresentative statement; yes.

The CHAIRMAN. Well, you fix it so it won't be misrepresentative.

Mr. GIBBONS. I shall be delighted to do so, and I wish I could make these statements based on fact.

Mr. FULTON. What is wrong with the facts of it first? I took your figures, didn't I?

Mr. GIBBONS. The Aluminum Co. of America, as I said, has itself developed 60,000 kilowatts.

Mr. FULTON. And that is 60,000,000, you told me, production capacity. Now didn't you also give me that \$350,000,000 figure—I mean 350,000,000-pound figure?

Mr. GIBBONS. If you are going to testify I will let you.

Mr. FULTON. I would like to straighten it out. You say it is misrepresentative; let's see if it is in fact. That first I got, 60,000,000 pounds annual capacity being your own figure of what you had added to capacity by reason of these water-power projects that you have developed, and then I took the 350,000,000, which I thought I heard you say about 10 minutes ago was the capacity that you had in 1939, at the end of the year?

Mr. GIBBONS. That is correct.

Mr. FULTON. Now adding those two figures together the arithmetic, as I view it, would be 410,000,000, would it not?

Mr. GIBBONS. I think that is good arithmetic.

Mr. FULTON. And the figure which was given by Mr. Batt for direct military requirements was 1,200,000,000 pounds, was it not?<sup>1</sup>

Mr. GIBBONS. I don't know.

Mr. FULTON. I thought you had previously referred to having read that testimony?

Mr. GIBBONS. I beg your pardon; I did not.

Mr. FULTON. In any event, that is my recollection of what he said as being direct military requirements alone. Now if you will divide 410,000,000 into 1,200,000,000 I think you will find that the arithmetic is also correct, that it is about one-third, isn't that true?

Mr. GIBBONS. Well, I haven't divided it in my mind, but it sounds like good arithmetic.

Mr. FULTON. If you have any doubt, won't you please do it?

Mr. GIBBONS. I have no doubt about it at all.

Mr. FULTON. And since that is direct military alone, without allowing for indirect, and without allowing for civilians, does it not follow that unless you got what you term "juice" from the Government, or from some other source, you wouldn't be today prepared to produce one-third of the aluminum that the O. P. M. believes will be necessary for this country?

<sup>1</sup> See *supra*, p. 715.



Mr. GIBBONS. That is correct. If you will permit a slang phrase, So what? How much aluminum did you produce, Mr. Fulton?

The CHAIRMAN. That is beside the question.

Mr. GIBBONS. I think so, too, Senator.

The CHAIRMAN. I gave you an opportunity to make the statement as you wanted to get it in the record. We are not going into personalities; we are trying to get information in order to help the national-defense program of the Government; we are not fighting with each other. If you have a statement to make, now make it.

Mr. GIBBONS. I merely wanted to say that the 60,000 kilowatts that we produced was all the power that we could produce; we had no other way of producing any power to meet the emergency, in time to meet the emergency. In other words, we developed these two developments; then we went to the T. V. A. and we purchased approximately 140,000 kilowatts and we purchased 182,500 kilowatts from the Bonneville Power Authority to make aluminum, and we have succeeded in bringing in two or three minor blocks of power, one of them, I think, being four, five, or six thousand horsepower, and another six or eight thousand horsepower in minor improvements, so that the total power which we have been able to buy and ourselves develop—and that is the total power we have been able to buy and develop to this date—is 60,000 kilowatts, which we developed ourselves; 182,500 which we bought from the Bonneville Power Authority, and 140,000 which we bought from the T. V. A., or a total of 382,500 kilowatts per annum.

The CHAIRMAN. What we are getting at is, is the Aluminum Company of America willing to stretch itself to every point possible in order that the national-defense program of this country may be carried to a successful conclusion?

Mr. GIBBONS. We are proud to do it, Senator; we want to be called on to do everything we can.

The CHAIRMAN. Regardless of any agreements or anything outside of the country that may exist?

Mr. GIBBONS. There are no such agreements, but regardless of them, if there were, I might say even regardless of bankruptcy, because we don't know where we are going to land after this is over.

The CHAIRMAN. No one else, but the point is we are facing a condition which has to be met and every person in the country ought to do his part.

Mr. GIBBONS. We hope we will be called on to do our bit. We think we have. I think you will find the Army, the Navy, the O. P. M., and all we have contacted will testify that we have done our best.

Senator WALLGREN. I would like to get a few things straightened out. What percentage of your total output of aluminum goes out of the Bonneville Dam?

Mr. GIBBONS. I will have to figure a little, sir.

Senator WALLGREN. The approximate figure would be satisfactory.

Mr. GIBBONS. Assuming 725,000,000 is our July 1942 output, which we think it will be, we will get 160,000,000 from Bonneville, which is 22 percent.

Senator WALLGREN. How about the T. V. A., approximately what is the percentage that comes out? I am just trying to find out what part our Government projects are playing in the manufacture of aluminum.

Mr. GIBBONS. They are playing a magnificent part, let me say.

Senator WALLGREN. In other words, it was farsighted as a program?

Mr. GIBBONS. It was a very farsighted program, sir. Not that I want to go on record for Government ownership, but be that as it may.

Senator WALLGREN. You folks would rather use Government power than furnish it yourselves?

Mr. GIBBONS. You are right, sir.

Senator WALLGREN. You said I was right on that, didn't you?

Mr. GIBBONS. I said you were right; sir, yes. The figures are almost the same. We will get about 140,000,000 from T. V. A. and that will be about 20 percent.

Senator WALLGREN. That is about 44 percent?

Mr. GIBBONS. Yes.

Senator WALLGREN. Approximately. Has there been any appreciable reduction in the price of aluminum over the past few years?

Mr. GIBBONS. Yes; the price has been reduced in the last 2 or 3 years from 20 cents to 17 cents.

Senator WALLGREN. In the last 2 years?

Mr. GIBBONS. I will give you that accurately, sir. In the year 1940, I think, there were two reductions of 1 cent each. In the year preceding there was one reduction of 1 cent; I think that is accurate.

Senator WALLGREN. Now when we speak of the price of aluminum to the Government as 17 cents we are talking about raw aluminum, aren't we?

Mr. GIBBONS. Yes, sir.

Senator WALLGREN. Now the Government doesn't buy such a thing, does it?

Mr. GIBBONS. In small quantities, but from your standpoint I think the answer would be No, it does not. But they buy some.

Senator WALLGREN. Now a little while ago you referred to—I think Mr. Fulton was questioning you, speaking about magnesium—I understood you to say that you practically controlled the output of magnesium?

Mr. GIBBONS. Oh, no; Senator, I want to say the reverse; we don't make a pound of magnesium.

Senator WALLGREN. Well, about options on supply or anything of that sort?

Mr. GIBBONS. We have no patents nor any control whatever of magnesium. We fabricate magnesium and use it as an alloy with aluminum.

Senator WALLGREN. Is there any shortage of magnesium?

Mr. GIBBONS. There is, I understand, but it is being rapidly and very ably reduced by the Dow Co., the Kaiser Co., and the Permanente Co.

Senator WALLGREN. But those companies out on the west coast—the Kaiser Co., I think that is the Permanente Co., but those companies are not going to be in a position to produce anything for a considerable period of time.

Mr. GIBSON. I really don't know, sir. I understood that the Dow plant in Texas was coming in very shortly, if it has not already come in, but I am not sure of that; that was a very large increase. You see we are merely purchasers of magnesium. We make none whatever ourselves. We have no patents and no control over it

and merely go out and buy it from wherever we can buy it, and fabricate it into castings for the Government, mostly.

Senator WALLGREN. Are you making any plans for fabricating plants other than what you have today?

Mr. GIBBONS. In magnesium, sir?

Senator WALLGREN. Aluminum.

Mr. GIBBONS. Yes, sir; we are spending very large sums of money. For example, just to give you one striking illustration, at Alcoa, Tenn., which is one of our large aluminum centers, we are putting in a \$35,000,000 rolling mill plant which we hope will be ready by—that we will get some output from in September and I think it will be in full operation by November, and that plant will be the largest aluminum sheet mill in the world, and will produce from twelve to fifteen million pounds of high strength alloy sheets, suitable for airplanes, per month.

Senator WALLGREN. Have you any thought of placing such a plant on the west coast?

Mr. GIBBONS. No; we have not, for one very important reason. In the first place the difficulty, the bottleneck, in hastening to build a plant is not building the plant itself but it is organization, personnel. We have no personnel out there for rolling sheet. We do have a very substantial aluminum plant at Los Angeles but it makes forgings, extrusions, and castings.

Senator WALLGREN. Does it take part of your output from Bonneville?

Mr. GIBBONS. Yes, it does. It might well be——

Senator WALLGREN (interposing). And avoid considerable transportation?

Mr. GIBBONS. You are right, sir, it would; and that is one thing we had in mind in going to Bonneville, that maybe that section would grow; it certainly looks to me like a kingdom in itself out there, and it ought to grow, and some day it may use all of Bonneville, I don't know. We have thought, sir, I may say, that it was not a particularly strategically wise location for important plants. That is however only—what you might call general opinion.

Senator WALLGREN. You went there because the power was there?

Mr. GIBBONS. We went there because the power was there and Government power, sir.<sup>1</sup>

Mr. FULTON. Going back to these petty figures again.

Mr. GIBBONS. You must excuse me, Mr. Fulton.

#### BAUXITE STOCKS <sup>2</sup>

Mr. FULTON. Let's see, on the question of bauxite, I think you told me that you had a stockpile at the beginning of the emergency which was about the equivalent of a month's production at that time; I think enough to make 30,000,000 pounds of aluminum?

Mr. GIBBONS. That is correct, sir.

Mr. FULTON. And you told me you had a little more than doubled that, so that you now have a little more than 30,000 tons of bauxite in your stockpile?

<sup>1</sup> This subject is resumed on p. 802, *infra*.

<sup>2</sup> This subject is resumed from p. 788, *supra*.



Mr. GIBBONS. That is correct, sir.

Mr. FULTON. But that would only be enough to make about 65,000,000 pounds of aluminum, wouldn't it?

Mr. GIBBONS. I am sure that is good arithmetic, because I said 30,000,000 for the other; yes.

Mr. FULTON. And that being so, you have a production, I understand, now of forty-odd millions a month, don't you?

Mr. GIBBONS. Yes; our production in April was 46,000,000.

Mr. FULTON. So as the result of your efforts during this emergency you have increased your bauxite stockpile from about a month's supply to somewhere in the neighborhood of a month and a quarter to a month and a half, is that it?

Mr. GIBBONS. Yes; we have only endeavored to increase the storage up to about 250,000 tons. We hoped to be able to do that, but it has been impossible to do so; and it still is impossible, we fear, to do so.

Mr. FULTON. Mr. Batt, of the O. P. M., testified on Monday that he had obtained an agreement, as he understood it, from the Aluminum Co. that it would increase its bauxite supplies in the country by importation. Is that the extent to which that arrangement was taken up, or did you have no such arrangement?

Mr. GIBBONS. If you mean by arrangement, Mr. Fulton, a definite agreement, there was none such. We were asked, I believe, though I was not the person interviewed, to increase our storage of bauxite up to, I believe, 250,000 tons, and said we would endeavor to do so, but we have not been able to do it because it has just been impossible to get ships.

Mr. FULTON. Why wasn't it possible to do more than half of what you had stated you would endeavor to do?

Mr. GIBBONS. Because it was impossible to get ships. We have in Arkansas, I may say, Mr. Fulton—I think this will interest you—stripped, as we call it—may I explain that, or do you understand it?

Mr. FULTON. I understand it, but go ahead and explain it.

The CHAIRMAN. I come from the strip mines country.

Mr. GIBBONS. We have stripped bauxite up to the extent of 1,700,000 tons, and we could put in a plant to mine that bauxite inside of 30 to 60 days. It is a very quick operation. It is steam-shovel work. In other words, let me put it this way: We have, as you may say, a stock of bauxite in Arkansas which merely has to be picked up and shipped, of approximately one million six hundred or seven hundred thousand tons. It is all stripped ready to dig right out, and we have done that in anticipation of being called on to increase our bauxite shipments from Arkansas quickly, but we have not taken that out of the ground because we just haven't had the time. We have been so busy with our other expansion activities. As I say, by putting in a mining plant at a cost in excess of a few hundred thousand dollars we could do it, get going in 2 months; and to establish a large amount of labor down there for, say, 60 days or 90 days would be an unwise thing to do, because we would have to lay those people right off as soon as we finished.

Senator WALLGREN. A little while ago we were talking about the total amount, that is, the domestic supply we might have on hand to keep us for  $2\frac{1}{2}$  years.

Mr. GIBBONS. Yes, Senator.

Senator WALLGREN. Is that at the present rate of capacity or the anticipated rate?

Mr. FULTON. It would approach the anticipated, but it isn't that.

Mr. GIBBONS. I think that is the anticipated rate, Senator.

Senator WALLGREN. I see; and I think you said you had a lower-grade bauxite.

Mr. GIBBONS. That is correct, sir.

Senator WALLGREN. That might furnish you with bauxite for 10 years or so.

Mr. GIBBONS. I think so. I think we could rely for 10 years on that low-grade bauxite at—what is today—at Wednesday's anticipated need.

Senator WALLGREN. When you speak of a higher grade and lower grade of bauxite, what is the exact difference? What is your trouble in processing?

Mr. GIBBONS. I should be glad to explain that. The presence of silica in bauxite is the objectionable presence. We find it to be commercial from the standpoint of handling the amount of material, from the standpoint of economy, to stick to bauxite containing up to not more than, say, 6-percent silica.

Senator WALLGREN. Is there a great difference in the quality between the two?

Mr. GIBBONS. No, sir; it is just the amount of silica. Taking bauxite running up to 15-percent silica and using 5 tons of bauxite to make 1 ton of aluminum, instead of using 4 tons as we do now—

Senator WALLGREN (interposing). Just like gold running so much a yard.

Mr. GIBBONS. Yes; you can take it out at \$2 a ton or at \$200 a ton.

Senator WALLGREN. It doesn't make any difference at all in the quality of your product?

Mr. GIBBONS. None at all. There is a slightly different process involved, and it makes it a little more expensive, but from your standpoint, Senator, that 20,000,000 tons of low-grade bauxite is a comforting facility to meet this emergency.

Senator WALLGREN. I think it is something we ought to know.

Mr. GIBBONS. Yes; I think so.

Mr. FULTON. At any rate, with respect to the foreign bauxite you have about 4 or 5 weeks' supply, and I would like to know what the nature of the shipping "bottleneck" was in the fall or late summer of 1940 that prevented you then from getting in a little more bauxite.

Mr. GIBBONS. Well, ships were hard to buy. We bought, for example—I would like to tell you what ships we did buy. In December of 1939 we bought five ships. In May 1940 we bought five more. In October 1940 we bought four more. In November of 1940 we contracted to build three more. In March of 1941 we bought four more. In May of 1941 we bought two more; and I suppose one shouldn't bribe a Government officer, but I would give you a pretty fat fee if you would go out and get four or five more because we just can't get them. You know that better than I do.

Mr. FULTON. How many did you charter last summer?

MR. GIBBONS. We have—I am approximating only—about 45 ships on the water, including what we charter and what we own. I think we own about 20—either actually own or contemplate owning when they shall have been built; and perhaps the other 25 are chartered. We have chartered all the ships we can get and our charter rates, as you know, sir, have gone up almost three and four times.

MR. FULTON. What I have in mind right now, when your plants are in production you need more bauxite, yet I understood you to say 130,000 tons was the total capacity of your stockpile. I was trying to ascertain whether you had allowed your importations to be governed by the facilities for stockpiles without increasing the same, or whether you had at all times tried to get in as much bauxite as you could, irrespective of whether you would have to enlarge your stockpile facilities or not.

MR. GIBBONS. I should like to say that we didn't start thinking about enlarging our stockpiles until you began thinking about whether you wanted to build a bomb-proof shelter, I expect, wherever you live, but we did start thinking about it in early 1940. At that time the charter rates were going up so that on the one hand we were sort of limited by what we had to pay to get charters, we were limited by our finances as to how many ships we would buy. We didn't want to buy ships at exorbitant prices, but I might say that beginning in 1940 we brought in every ton of bauxite we felt we could economically bring in, and we are still pursuing that plan.

SENATOR BREWSTER. Are you using all of your boats in that trade?

MR. GIBBONS. Yes, sir; we are using every one of them.

SENATOR BREWSTER. That is to bring bauxite in?

MR. GIBBONS. That is correct, sir.

SENATOR BREWSTER. Do you have to bring any other supplies in?

MR. GIBBONS. No. Well, the bauxite is no more than a clay and it goes in the hold of the ship. We frequently bring material on the deck, but we bring the ship's full capacity of bauxite every time.

SENATOR BREWSTER. But you are operating services to some of the islands?

MR. GIBBONS. That is correct, sir.

SENATOR BREWSTER. But that doesn't involve any of these boats?

MR. GIBBONS. No, sir. We operate going down, we haul a great deal of freight for the Government, incidentally, and we are just now sending down an enormous amount of freight to various stations.

SENATOR BREWSTER. To these various new bases?

MR. GIBBONS. Right.

SENATOR BREWSTER. You take the stuff down there and bring the bauxite back?

MR. GIBBONS. That is correct, sir, and these ships always come back with every ton of bauxite on them that we can load on them with safety. I would like to emphasize that we are doing everything humanly possible, and it has long been almost a fetish with us that our Arkansas bauxite should be conserved because it is a precious store of wealth or defense material for the United States, and it is too bad to deplete it. We have mined as little Arkansas bauxite as we could. We have to keep a nucleus of an organization there, of course, to keep the mines going, but we get along on just as little as we can from Arkansas and bring in all we economically can from



foreign sources with just the natural motive, the proper motive that any citizen would have, of trying to conserve the domestic supply against just the emergency which confronts us today.

Senator WALLGREN. You say the process of making aluminum out of alunite is a far more expensive process?

Mr. GIBBONS. Senator, if you will drop the word "far" I will go along with you. I think it is more expensive. I don't know whether it is far more expensive. But the alumina is not so pure and that is a rather serious handicap because you get alumina that has a good deal of silica and that passes on to the aluminum and you get an impure aluminum, and you must have the aluminum quite pure in order to use it. But I think that is just a temporary thing.

Senator WALLGREN. The reason I ask is that it is my understanding that we have a great supply of alunite in this country.

Mr. GIBBONS. We have, I am told, sir—you know better than I do, I am sure—a moderate supply. When I say moderate, I mean maybe ten or twenty million tons. There may be more. For instance, in Marysvale, Utah, there is some. There is a great deal in the Northwest. We know little about the Northwest alunite. We did investigate the Marysville once and struggled for 10 or 15 years to use alunite as the basis of making aluminum, but it just seemed so difficult and so uneconomic that we abandoned it, according to our then information. I understand there is a very reliable company working on it today and I hope they will be successful.

Senator WALLGREN. You are speaking now of the Kaiser Co.?

Mr. GIBBONS. No, sir; I think it is called the Alunite Co. It was one time partially owned by some wealthy people in St. Louis, the Western Cartridge crowd.

Senator WALLGREN. You mean they are just experimenting now?

Mr. GIBBONS. No; I think they are trying to work it practically, but I don't know, sir. I read about it in the papers, that is about all I get out of it.

Mr. FULTON. With respect to the bauxite in Arkansas, is it costing you more for the bauxite that you get from Arkansas than from Dutch Guiana?

Mr. GIBBONS. No, Mr. Fulton.

Mr. FULTON. In other words, is the cost of producing it in Dutch Guiana plus the freight no more than the cost of producing it in Arkansas plus the freight?

Mr. GIBBONS. That is about right. Peculiarly enough, the alumina made out of Arkansas bauxite costs just about the same as the alumina made out of South American bauxite, because the South American is a much better bauxite and the recovery is higher, and the net result is that we use them back and forth; it doesn't make any difference from the cost angle which we use.

Mr. FULTON. And long before you were thinking in terms of the emergency you were using very large quantities of South American bauxite because you considered it commercially the thing to do.

Mr. GIBBONS. We were using up to 60 percent, I think, of our total requirements; yes.

Mr. FULTON. So would it be correct to say you were saving your Arkansas bauxite for national-defense needs?

Mr. GIBBONS. Yes; I think that may be correct, because it has been my pet hobby for 25 years, and I have come down to Washington

on several occasions and told the tariff people that I thought they ought to lift the tariff on bauxite to encourage people to use foreign bauxite. Insofar as I have influenced the policy of my company, I think that is a fair statement; yes.

Mr. FULTON. Then you were putting the country's interest from the standpoint of bauxite ahead of the company's interest; is that correct?

Mr. GIBBONS. I think we would always do that in an emergency. I don't know that I would think about doing it every day in the week when we didn't have an emergency.

Mr. FULTON. But prior to the emergency you were thinking about it with respect to bauxite. What I have in mind is, why didn't you likewise think about it with respect to such things as water-power and the production of facilities to reduce it from alumina to aluminum?

Mr. GIBBONS. We have done that, Mr. Fulton, in this way. We have reserves of bauxite against any need, our own or the country's emergency need. We tried to acquire reserves of water power. We bought a series of potential water powers in the Great Smoky Mountains on the little Tennessee River against our future needs, against whatever needs might arise, but that proved to be inadequate because the water power of the United States was lapped up so fast, as it were, not to make aluminum but for the thousand and one things that power goes into, that it just turned out you can't buy any more water power, that we know of, at a price which would permit the use of it for aluminum.

#### HYDROELECTRIC POWER USED IN PRODUCTION OF ALUMINUM

Senator WALLGREN. Right along that line now, we have, out in the State of Washington, as you know, considerable water power, and we are going to be able to furnish you all the power you want out in that country.

Mr. GIBBONS. Senator, we will buy 100,000 kilowatts right now.

Senator WALLGREN. I am trying to talk you into putting in a fabricating plant out there, because I think you can make all the aluminum you want with the water power we can furnish you out of Coulee and Bonneville, and out of the water that tumbles into Puget Sound out of the Cascade Mountains. There is more water power out there than you can imagine.

Mr. GIBBONS. Z Canyon, for example?

Senator WALLGREN. There is plenty of it out there.

Mr. GIBBONS. I think you are right there.

Senator WALLGREN. So I think you folks ought to get busy and start thinking about putting a fabricating plant out there to take care of the aluminum needs of various airplane plants that we have on the Pacific coast.

Mr. GIBBONS. I think you are wise, Senator.

Senator WALLGREN. I think on top of it the Government would save a little money in transportation cost.

Mr. GIBBONS. Not wear the stuff out carrying it back and forth across the country.

Senator WALLGREN. That is right.

Mr. FULTON. Mr. Gibbons, at least having this patriotic desire of putting the position of the country ahead of the company, I assume that you have no water sights on which you have not constructed dams.

Mr. GIBBONS. That is practically true. If you will put the limitation "on which we have not constructed dams that we could get ready in time for our present needs," yes.

FONTANA, N. C., POWER PROJECT CONTEMPLATED BY ALUMINUM CO. OF AMERICA

Mr. FULTON. One thing that interested me greatly was the release which the O. P. M. put out to the effect that in accordance with the defense needs, you were about to put up a big plant to produce 100,000 kilowatt-hours at the Fontana section in North Carolina. And it said as of the date of that release it would take 3 years, but that you were going to do it. That will be 3 years from October 1940, which would bring you up to October 1943. Now, has the Aluminum Co. proceeded to use its money to construct that 100,000 watts of power or has it been satisfied to get the power from the T. V. A. instead?

Mr. GIBBONS. We made some efforts to develop that but there seemed to be so many obstacles involved that we thought it was much smarter and much quicker to try to use Government power. We once hoped, I may say, to get some of Senator Wallgren's fine Bonneville power, but we haven't been able to get as much as we hoped to get, and we turned our attention toward the Government-owned power because I am frank to say that we found the Government people splendid to deal with; they have been very nice in every way, and we have an interchange agreement, for example, with the T. V. A. so they use our power—we borrow sugar from them and they borrow butter from us, and we get along fine with them down there, and they have been splendid people to deal with.

Mr. FULTON. What I had in mind was not so much sugar and butter but the question of kilowatts. Have you found it would be cheaper to buy the power from T. V. A. and Bonneville than it would be to build your own plants?

Mr. GIBBONS. No; it is much cheaper as a rule to build our own plants.

Mr. FULTON. And you could build the plants and produce electricity at rates less than the amounts you are paying the T. V. A. and Bonneville?

Mr. GIBBONS. Generally speaking, we could. Those rates are very satisfactory, however.

Mr. FULTON. And did you do that at the Fontana project?

Mr. GIBBONS. I don't know what the facts are about that, Mr. Fulton. I think the Fontana development is a pretty expensive one, but whether it would compare favorably or unfavorably with the Government's, I don't know; but the time element I know we thought was important. You must remember when we contemplated Fontana as referred to, I presume in the release you mentioned—I am not familiar with it—



Mr. FULTON (interposing). It in effect says that you people told the O. P. M. you were going to create 100,000 kilowatt-hours as a defense project to help the country along, in line with, I assume, this feeling you had of putting the company's interest behind that of the country.

Mr. GIBBONS. Would you just read those words? Would you read the words where we said that? I had forgotten we had said that.

Mr. FULTON. The words are that—

the Aluminum Co. has advised the Defense Commission that it has filed with the Federal Power Commission a declaration of intention to construct a hydroelectric project at Fontana, N. C., close to its plants at Alcoa, which will add 100,000 kilowatts to the company's power system and will add automatically substantial power for the plants in the T. V. A. area located below the site of the proposed reservoir. This project will not be completed for 3 years but will provide an additional source of power for the reduction of aluminum in the future.

Now I combined that with your statement of patriotism which I understood you to make about 10 minutes ago.

Mr. GIBBONS. No; I made no statement about patriotism. I hope my patriotism isn't being impeached, but I made none. I merely said we felt it was a wise thing as a citizen of the country to conserve the country's resources.

Mr. FULTON. Such as by building the kilowatt consumption at Fontana?

Mr. GIBBONS. The reason, as I understand, one reason we didn't go ahead with Fontana was that it was a 3-year project and back at that time there was no big conception of an aluminum program. For instance, this present 1,400,000,000, if that is the figure that is talked about now, is only a few weeks old. We only heard about it. I think I am correct in saying, within 2 or 3 weeks.

Mr. FULTON. I think you are correct. I haven't heard of it before that either.

Mr. GIBBONS. Back in October of 1940, or whenever the date was you mentioned, we thought there was plenty of aluminum provided for, and Bonneville and T. V. A. were available to us, and we said, "Why not go out and get these plants going quickly and have this aluminum available?" and we hoped to take care of the civilian needs. That turned out to be a false hope. There isn't enough available for civilian needs. We wish there were, because that is our bread and butter.

Mr. FULTON. But without respect to this estimate within the past 2 or 3 weeks and beginning with the effect on the production statements as you made them then and the figures you have given me recently, you are still using more than five and a quarter horsepower of Government power for every one of additionally created horsepower that the Aluminum Co. has built itself; isn't that true?

Mr. GIBBONS. I expect it is, sir. I have no doubt it is.

Mr. FULTON. And even if you had created 100,000 kilowatt-hours, as you contemplated at the time that release was given out, you still wouldn't be furnishing half of the additional requirements even on the very limited production estimated that we were using up until recently?

Mr. GIBBONS. If your figures are correct, as I have no doubt they are, that would be true; yes.

Mr. FULTON. Is there any question but that they are correct?

Mr. GIBBONS. I don't know; I haven't figured them out but I don't question them.

Mr. FULTON. Suppose we do take those figures. I took them down in pencil at the time you gave them yourself. You had 60,000 kilowatt-hours which you were obtaining from the projects which you built, and against that you listed for us 182,000 and 140,000 Government kilowatt consumptions.

Mr. GIBBONS. That is right, sir.

Mr. FULTON. So that would mean of the amount there, you would be obtaining 322,000 kilowatt-hours from the Government for the 60,000 which you created yourself.

Mr. GIBBONS. That is probable, sir.

Mr. FULTON. Which would be over five times as much as you created—between five and five and a half.

Mr. GIBBONS. That is good arithmetic.

Mr. FULTON. And even if you had gone ahead with the Fontana project, which you had in mind, you still wouldn't have been furnishing half of the additional power necessary to power these big reduction plants, because in that event you would have had only 160,000 as against 382,000, and 160 would be considerably less than half of 382.

Mr. GIBBONS. Where do you get your 382? I am a little stalled.

Mr. FULTON. The 60 plus the 322.

Mr. GIBBONS. I thought the Government was 182 plus 140; is that correct?

Mr. FULTON. So the Government is 322 and the total of the Government plus Aluminum is 382.

Mr. GIBBONS. And the 100 plus 60 is 160. In other words, it would be exactly half.

Mr. FULTON. One hundred and sixty, if you had furnished it, would have meant you would have had to obtain from the Government 220, and you would have been furnishing 160/382nds of the total, or less than half, even under that assumption.

Mr. GIBBONS. That is about right; yes.

Mr. FULTON. So what I had in mind is, in view of those circumstances, why did you abandon this Fontana project which you had announced you were going to build to assist the defense efforts of the country, and which would not be very useful if we had it in the course of building?

Mr. GIBBONS. As I say, I didn't follow this thing myself at the time, I wasn't involved in the negotiations, but I do recall that Fontana was a slow development. I do recall that Grand Coulee was coming in, I think by 1941 or 1942, perhaps complete by 1942, and that seemed to be a quicker source of power than to take the slow and expensive power which the Aluminum Co. certainly would have had to pay for out of its own pocket. It seemed more expeditious to go ahead with the already developed powers, and we are still trying to go ahead with already developed powers because the need has become so pressing now that the Aluminum Co. hopes to make another 100,000,000 pounds of aluminum if it can find the power. We will break ground tomorrow if somebody will get us the power.

Mr. FULTON. What I had in mind was this: Did the Aluminum Co. refuse to go ahead with the Fontana project because the Federal

Power Commission would not give up the requirements which Congress had specified with respect to water-power projects licensed by it?

Mr. GIBBONS. That may be true. I had nothing to do with those negotiations; it may be true.

Mr. FULTON. I show you a photostat of a letter and ask if that was not sent to the Federal Power Commission from or in behalf of the Aluminum Co.

Mr. GIBBONS. I never saw the letter before, but I think it was. The attorneys on whose letterhead the letter is written are our attorneys, and I see numerous references to circumstances and individuals in there that make me think you are correct.

(The letter referred to was marked "Exhibit No. 56" and is included in the appendix on p. 948.)

Mr. FULTON. With respect to the Fontana project, it would have required about \$35,000,000 of your money, would it not, to have built it?

Mr. GIBBONS. About forty-five I think is more accurate.

Mr. FULTON. Is it true or not true that you applied to the Federal Power Commission for licensing of such a project?

Mr. GIBBONS. I don't know whether we applied. I know we discussed it with them. We may have applied, I am not saying we didn't, but I know we discussed it.

Mr. FULTON. I have here a report of the Federal Power Commission in which they make the statement that while your company had insisted—and I am quoting—

that the project should be speedily built for purposes of national defense, it now announced it had abandoned this intention to construct the project and sought to withdraw its declaration of intention. Notwithstanding the public interest, Alcoa, through its subsidiary, in effect demonstrated that in its national defense effort it was unwilling to accept the reasonable limitations on unearned increment in the value of its power project provided by Congress in the Federal Power Act.

It is true that the Aluminum Co. abandoned the Fontana project because it was unwilling to conform to the limitations which the Congress had specified in the Federal Power Act?

Mr. GIBBONS. I don't think that is necessarily true. The only thing I know is that in considering it, we were appalled by the fact of putting \$45,000,000 of our stockholders' money into a project which would be taken away from the stockholders in 50 years. That is the extent of my knowledge. I heard that discussed in the councils of the company, but as to the details you mention, which I don't question in the slightest, I have no knowledge of them at all.

Mr. FULTON. In other words, the recapture clause which the Congress had specified, making it possible for the Government to reacquire its natural resources at the end of 50 years, was the reason the Aluminum Co. was unwilling to go ahead before the Federal Power Commission?

Mr. GIBBONS. Well, we weren't willing to put 45 million of our money into a project and not get it back; yes.

Mr. FULTON. And that was in line with this policy that I think you enunciated a little while ago of putting the country's interests ahead of the company's?

Mr. GIBBONS. No; I still think, and as I sit here today I would be just as opposed to doing that, unless it were necessary to do so.



There was a vast amount of available power in this country without doing this. There is still out at Grand Coulee at this moment available power enough, I think, to make all the aluminum this country will need to meet the 1,400,000,000 pounds that is required. There is 80,000 horsepower at Boulder Dam, I am told, that is available. There is a large amount of power that can be got from the T. V. A., and the Aluminum Co., I think, was unwilling to put \$45,000,000 of its stockholders' money into a project which would be taken away from it in 50 years, and as an officer of the company I would subscribe to that belief.

Senator BREWSTER. You say "would be taken away." You mean might be taken?

Mr. GIBBONS. Perhaps you are right, Senator; I don't know what the law is, but I thought it was an act which would inevitably occur, but I don't know that it is true, sir. I know in hearing it discussed in the councils of the company we thought, as trustees of a stockholder's interest, that so large a venture as a \$45,000,000 venture, at a time when we were spending \$200,000,000 already of stockholders' money to meet national defense, with the very uncertain outlook for the future thereafter, frankly one that almost looks like bankruptcy at this stage, that we would be unwise to put \$45,000,000 on top of what we had already done, with that danger confronting us. It was simply a company policy. Mr. Fulton is inclined to impugn our patriotic motives, but we think it was—

Mr. FULTON (interposing). I wish to be clear on that. I am not the only one who raised the question of patriotic motives and I am only going into the extent of the patriotism which you yourself raised when you said nothing was more important to the Aluminum Co. than patriotism. I, of course, have not raised that subject at all, and I thought you were the one who introduced it.

Was it not you who first mentioned that question?

Mr. GIBBONS. Patriotism? No, sir; I haven't mentioned patriotism except as I quoted you in mentioning it.

Mr. FULTON. I see. Then I was quite mistaken.

With respect, however, to this Fontana project, when you found that you could not get the provisions which the Congress had specified lifted from that project, you decided that you would withdraw the project entirely from the Federal Power Commission; is that correct?

Mr. GIBBONS. No; we didn't withdraw anything from the Federal Power Commission.

Mr. FULTON. Didn't you make application for permission to withdraw it?

Mr. GIBBONS. You said we withdrew the project. If we made an application, we may have withdrawn that. I think you told me so and I accepted your statement about it. In fact, we will be delighted to sell the project to T. V. A. or anybody else that wants to develop it right now. We don't want to do it.

Mr. FULTON. But at any rate you have withdrawn any application you had before the Federal Power Commission.

Mr. GIBBONS. I am sure there is no application pending now. I would know if there were, because it involves forty-five millions.

Mr. FULTON. And the Federal Power Commission reached the conclusion that Alcoa had not dealt frankly with them, "and in the past has undertaken and is now attempting to evade the plain provisions of the law"; is that correct?

Mr. GIBBONS. I suggest you ask the Federal Power Commission. I don't know anything about what they think.

Mr. FULTON. As senior vice president of the Aluminum Co. are you not familiar with what happened with respect to that \$45,000,000 project?

Mr. GIBBONS. I am not familiar with the thing you have been reading from, apparently, because I have never read it.

Mr. FULTON. Will you read it now and see if I didn't correctly read from the last paragraph?

Mr. GIBBONS. I would rather admit you did and save the time of the Senators who are sitting here.

Mr. FULTON. With respect to this letter which you identified as being a letter from the attorneys of your company to the Federal Power Commission, I note that you say in this—or not you, but your attorneys say—

If T. V. A. does not want to proceed with the construction of Fontana, then Mr. Holden of O. P. M. is prepared to recommend that the project be built by the War Department and leased to the Aluminum Co. or subsidiary for the usual 5-year period with option on the part of the lessee to purchase the plant.

Had you heard of that proposition?

Mr. GIBBONS. I don't recall that I had, Mr. Fulton. I am not quite familiar with what is referred to. If the letter says so, please don't think I am questioning what the letter says. I am not. I am simply saying I don't remember anything about the War Department's developing it and leasing it to us. That may have been discussed.

Senator BREWSTER. What would you feel about that? I understand that is your counsel that wrote this letter.

Mr. GIBBONS. That is correct, sir.

Senator BREWSTER. If that proposition were correct which he read, that the Government would furnish the money to build that plant, lease it to you for 5 years with an option of purchase, what would you think about that proposition from the standpoint of the Government?

(Senator Mead assumed the Chair.)

Mr. GIBBONS. I think it would be rather a good proposition. I think that would fit excellently into the T. V. A.'s magnificent power lay-out down there, whether they leased it to us or not.

Senator BREWSTER. I understood you didn't like to invest in a 50-year proposition, where the Government had the capacity to acquire, that you didn't feel it was a good proposition from the standpoint of your company?

Mr. GIBBONS. That is correct, sir.

Senator BREWSTER. And yet you think the Government could put up a proposition and give you a 5-year lease with an option of acquisition. Suppose we had a very inflationary period when that power would become immensely valuable; you could certainly contemplate that contingency, couldn't you?

Mr. GIBBONS. Yes; we could.

Senator BREWSTER. And that option of acquisition which could be taken into account might be very valuable?

Mr. GIBBONS. That is quite correct, sir; it might be a very valuable thing.

Senator BREWSTER. I say this, and I don't attribute any especial consideration to your company, this has been a very general policy, I think, in a great many plants which the Government is creating which I feel is open to very serious question, and this doesn't involve criticism of your attitude but does involve a question of Government policy. If we are going ahead to build a vast number of plants and give private interests the option of acquisition, it seems to me that the private companies are getting both ends of the deal; wouldn't that be so?

Mr. GIBBONS. I think so, sir; and my own view would be that we should not do that unless there is justification for it by reason of an emergency. I don't think the Government ought to do that.

Senator BREWSTER. If the Government is going to put the money up to build this thing, I don't see why in the name of Heaven it has to give you an option to acquire it.

Mr. GIBBONS. Neither do I.

Senator BREWSTER. You would be glad to lease it without an option to go ahead?

Mr. GIBBONS. Right.

Senator BREWSTER. I am glad to hear you say that, and I think it is something this whole question touches. I suppose 5 years from today in retrospect we will look back and say that people who did that might have been very much keener in anticipating the possibility of inflation.

Mr. GIBBONS. I think you are very right, sir.

Mr. FULTON. Then I take it that the Aluminum Co. would be withdrawing any request it may have made for such a lease as a condition to operating the plant with power so attained.

Senator BREWSTER. No; he said he thought the option was unwarranted. He would still be glad to lease.

Mr. FULTON. What I had in mind was to withdraw the request for an option.

Senator BREWSTER. And to insist on it. He agrees that from the standpoint of the Government they might well stipulate that particular proposition.

Mr. GIBBONS. Quite right. For example, I think the T. V. A. might develop this Fontana development and do what they please with it; for example, lease it to the Aluminum Co. for 5 years and then Fontana says your lease is up and we are going to sell it to Montgomery, Ala., and Chattanooga, and Nashville, Tenn., and wherever we can sell it. I think that would be quite a feasible thing to do. I would like to say this, if we had to go out and spend a good many millions of dollars in plants to use power for 5 years only, we would be confronted with a financial consideration that would require some analysis.

Senator BREWSTER. I quite appreciate that.

Mr. FULTON. And in that connection would you consider spending the 45,000,000 now to produce the Fontana plant under the regular arrangements the Congress has provided for power developments?

Mr. GIBBONS. No.



Mr. FULTON. You still would not consider that?

Mr. GIBBONS. No.

Mr. FULTON. Would you tell me, as nearly as you can estimate it, the proportion of the capital expenditure which would be necessary to create water power as distinct from plant reduction facilities for alumina to aluminum? In other words, I was trying to get the ratio between the cost of providing the water power and the cost of providing the reduction plant facilities. Which is the more expensive?

Mr. GIBBONS. I think the water power would be more expensive, Mr. Fulton, but I merely give you that as an opinion and I have no facts or data which justify my stating that as a fact, and I do not know what the ratio is.

Mr. FULTON. How much have you found it costs you to produce the reduction facilities of capacity sufficient to reduce 1 pound of aluminum a year?

Mr. GIBBONS. Am I correct, sir, in understanding you to inquire what a smelting plant and its immediate facilities cost per pound per year?

Mr. FULTON. Yes; the plant which would reduce the alumina to the aluminum. How much, for example, have you spent to produce a pound capacity?

Mr. GIBBONS. If you will permit me to almost guess, certainly to make a rather wild estimate, I would say it would be from 15 to 20 cents.

Mr. FULTON. And that would be in the neighborhood anyhow of the estimate Mr. Reynolds made of his costs, which I think worked out to a little under 17 cents?

Mr. GIBBONS. Yes; then it would be.

Mr. FULTON. And the water-power cost would be greater than that, but could you tell me how much greater? I think you worked out a tentative estimate with me yesterday of about 28 cents for what you regarded as cheap water power. Has that estimate been one that you could substantiate?

Mr. GIBBONS. I think that is a pretty good curbstone estimate, Mr. Fulton.

Mr. FULTON. And that would mean, then, that for every 17 cents, or we will say for every 15 to 20 cents, that you invest in reduction facilities, the Government or someone is providing you water power which costs somewhere in the neighborhood of 25 to 30 cents?

Mr. GIBBONS. Those figures would certainly indicate that insofar as they supply us power, yes.

Mr. FULTON. So that in effect, under existing circumstances, even the Aluminum Co. has had a substantial portion of the capital expenditure, necessary to increase its aluminum facilities, borne by the Federal Government, in the sense that water power has been furnished by the Federal Government?

Mr. GIBBONS. I think that is a fair deduction, because there is no question that we buy Government power, of course, and pay the going price for it.

Mr. FULTON. And without the existence of that power, the T. V. A. and Bonneville projects, we would be completely incapable of producing aluminum on the schedule we are hoping to establish, is that not correct?

Mr. GIBBONS. I think that is a strong statement. I think a more correct statement of the situation would be that the T. V. A. and the Bonneville power have been very excellent facilities and have made very splendid contributions toward meeting the needs to produce aluminum at this time.

Mr. FULTON. If it had not been for those you would have had to go into a 3-year construction program, according to your estimate on Fontana, and you would not have had any increase in power over and above that 60,000 kilowatts until sometime in 1943, isn't that true?

Mr. GIBBONS. Well, we could have built steam plants; we could have bought power, no doubt, elsewhere; we would have perhaps imported power from Canada; you speak of possibilities. Your language is rather limiting in its nature and I am trying to be accurate. I certainly agree with you that the Government's power facilities have been a handsome contribution to our needs. I think aluminum could have been produced with steam plants or Canadian power, if we could have persuaded them to let us have it.

Mr. FULTON. You have a steam plant in New York, have you not?

Mr. GIBBONS. No.

Mr. FULTON. I thought Massena was to be in part powered from that.

Mr. GIBBONS. No. I don't mean we have no steam boiler anywhere; we have a good many steam boilers, but we have no steam power plant generating electricity out of which aluminum is made.

Mr. FULTON. I thought you had planned originally to operate in part through steam, and that you were substituting the hydroelectric developments and that the plant that was to have used steam-produced power is not now operating in full. Maybe I am wrong and if so I would like to be corrected.

Mr. GIBBONS. Well, you are wrong.

Mr. FULTON. There were never any plans at all to use steam, is that correct?

Mr. GIBBONS. About 25 years ago—

Mr. FULTON (interposing). I mean within the last 3, 4, or 5 years.

Mr. GIBBONS. Then you are wrong, yes. You say there have never been any plans to use steam?

Mr. FULTON. Yes; by the Aluminum Co.

Mr. GIBBONS. No; none whatever. We have never had any plan to build a steam plant. I mean to make aluminum.

Mr. FULTON. What is the best estimate you were able to give us as to your cost of producing a pound of aluminum, including the bauxite, the alumina process, and the aluminum process?

Mr. GIBBONS. I was rather pleased to hear Mr. Reynolds give his this morning because he is a fine businessman, and it coincides almost exactly with ours. I am willing to take his estimate; I think it is a very accurate one.

Mr. FULTON. And by that, what is the amount you take?

Mr. GIBBONS. I think our costs will run from 10 to 12 cents a pound, without interest on investment.

Mr. FULTON. And would that be true of all this additional capacity as to which you have not provided any water power and have no capital investment involved in water power?

Mr. GIBBONS. That is correct.

Mr. FULTON. Would it also be true of your earlier capacity, which was in existence in 1939?

Mr. GIBBONS. That is correct.

#### ESTIMATES OF DEMAND, AND PRODUCTION BY THE ALUMINUM CO. OF AMERICA

Mr. FULTON. Now with respect to this shortage in the estimates. Has the Aluminum Co. taken any prominent position in estimating the quantities of aluminum that would be needed for the defense purposes, and has it made representations to the O. P. M. with respect to what it thinks would be the amounts needed?

Mr. GIBBONS. No, sir; we have no knowledge upon which to base such estimates. May I correct that to say we have no knowledge of independent data upon which to base it.

Mr. FULTON. I was much interested to note that as late as April 30 this year there was a memorandum in the files of the O. P. M. with respect to the variation in the estimates which tried to reconcile the statements that they then had with estimates by one Lombard, where he was showing requirements of 1,500,000,000 pounds, and it says in so many words that "We are using the unit weight factors which we have been able to obtain from a few available bills of materials and from the Aluminum Co. Lombard took the over-all weight of the frame and added 10 percent and used this as the aluminum content in the production of airplanes. These unit weights are far above ours." I wondered what the explanation would be for not adopting a process which seems as reasonable as taking the weight of the plane in aluminum in making the estimates, and I wondered what manner of estimating the Aluminum Co. had that was substantially different from that.

Mr. GIBBONS. I don't understand that at all, Mr. Fulton. We have no data. You see, we know, for example, that a Boeing B-19 requires so much aluminum, and as a rule we know what the propellers amount to in weight, what the engine forgings and engine castings, and that sort of thing, and if someone will tell us how many B-19's they want we can figure it up. I think we may be a little more expert in converting square footage and weights of propellers into pounds than some of the Government people, perhaps, who just don't live in that atmosphere like we do, but what I meant to say was we haven't the slightest idea of how many planes are wanted, what size planes are wanted, what type planes are wanted, or anything, until somebody says "We want so many planes of such and such type," and we say "Give us a bill of material," and we take that bill of material and convert it into pounds of aluminum. For instance, a man says, "We want a plane with a wing spread of so many feet. It must have four propellers instead of three. It is to have three 1,000 horsepower engines of Pratt-Whitney design." We know those designs and we can take this bill of material and figure out what the poundage of aluminum is, but we haven't the slightest conception of what is wanted until he tells us what sort of plane is wanted, and how many are wanted.

Mr. FULTON. That would be true of both sides, both Mr. Lombard in making his estimates and you in making yours, both of you would have that same problem.

Mr. GIBBONS. I would think so, yes.

Mr. FULTON. This memorandum, though, ends up with rather a



complex conclusion that "Either the figures which we are obtaining on bills of materials or the Aluminum Co. are completely wrong; or else Mr. Lombard's figures are out of line."

Mr. GIBBONS. We may have made a mistake. We don't pretend to be infallible.

Mr. FULTON. Apparently in the last week or so they have concluded Mr. Lombard's figures were reasonably accurate, or at least they have concluded he reached the right result, whether he reached it by the wrong reasoning or not.

Mr. GIBBONS. Our experience is whatever the O. P. M. concludes is apt to be pretty accurate and pretty right.

Mr. FULTON. One other question. You heard Mr. Reynolds testify, I believe, with respect to the thirty-odd-million pounds of aluminum that he said he had under contract during August of 1940, and to the fact that after the evidence was closed in the antitrust case he was told in September he could not have the aluminum.<sup>1</sup> What would be the facts with respect to that, so far as you know?

Mr. GIBBONS. Well, that statement is not accurate, of course. We never did anything of that sort.

Mr. FULTON. In the first place, did he get the aluminum?

Mr. GIBBONS. I happen to know these figures, that in 1938 we shipped the Reynolds Metals Co. about 21½ million pounds of aluminum. In 1939 we shipped them, I think, about 8½ million pounds; in 1940 we shipped them approximately 25,000,000, and now thus far this year, including the May shipments that are to go to them, we are shipping them at the rate of 50,000,000 pounds per year. Those are all the figures I have. I happen to have them in my mind, and you can draw whatever conclusion you please from those figures; they are accurate.

Mr. FULTON. With respect to the contracts, were there contracts? That is, were there orders which had been accepted by the Aluminum Co. prior to the middle of August on which delivery was not made during the fall of 1940?

Mr. GIBBONS. Oh, I am sure there were. We have four or five hundred million pounds of orders on our books now, some of which we don't expect to ship for 3 years. We would be very foolish if we did ship them.

Mr. FULTON. I was asking about orders which had been accepted before the middle of August in 1940.

Mr. GIBBONS. We had four or five hundred million pounds of orders accepted before the middle of August 1940 that we won't expect to ship for a good many years yet.

Mr. FULTON. Will you prepare and submit to the committee a list of the orders that have been accepted before the middle of August 1940, and the persons from whom they were taken, the delivery dates and the amounts that you have changed in that during the deliveries of 1940?

Mr. GIBBONS. I will do it if you insist on it, but it will take 2 years to do it.

Mr. FULTON. If it can't be done in 2 weeks, I would appreciate it if you would then make an effort to show us what you have been able to do in 2 weeks, because a company of your size and importance ought to be able to make a list of its orders.

<sup>1</sup> See *supra*, p. 754.

Mr. GIBBONS. You can't do it. You don't appreciate that the question you are asking is an impossible one. We are working nights, days, and Sundays to do our jobs, and we simply cannot do that unless you insist on it. We average about 16,000 orders a month; many of those orders have hundreds or even maybe thousands of items on them.

Mr. FULTON. Suppose we simplify it to say items of 1,000,000 pounds or more.

Mr. GIBBONS. I can't give you that because it is an impractical question.

Mr. FULTON. There aren't too many orders of 1,000,000 pounds or more?

Mr. GIBBONS. There are a great many of them. You tell me to say when we are going to ship them and what is done about them. I can't do that. For instance, here is a battleship that is being laid down prior to August 1940, and they come around and give us an order for it; it may be over 1,000,000 pounds; if it is a battleship it will be over a million pounds; and they aren't going to want the material until 1943, and we won't ship it until 1943.

Mr. FULTON. We are talking about the orders you had on August 15, 1940, and I had in mind just this: How many orders of over 1,000,000 pounds did you have then? That won't take very many weeks of intensive effort to list. And then with respect to those, how many of those were orders that were to be delivered during the year 1940? And again, that will not be too long a list.

Mr. GIBBONS. I can get that, I think.

Mr. FULTON. And how many of those orders were not delivered in 1940 because of the refusal of the Aluminum Co. to deliver them?

Mr. GIBBONS. What is the date as of which we had those orders?

Mr. FULTON. As of the 15th of August 1940.

Mr. GIBBONS. Let me repeat it to see if I understand it.

Mr. FULTON. It is all in the record, sir.

Mr. GIBBONS. You want me to look at our orders, unfilled orders, as of the 15th of August 1940 and determine how many orders for 1,000,000 pounds of material or over we had; and then notify you what of those orders were not delivered during 1940?

Mr. FULTON. Yes; on which orders were you in the position of having said you would make deliveries in 1940 which you did not in fact make. And I am talking only of large orders of 1,000,000 pounds or more. And then since, as I understand you, there are at least a number of those orders, the question arises in my mind as to why you did not correct the O. P. M. in the fall of 1940 when they made public statements to the effect that there was plenty of aluminum for military and civilian needs, if at that time you knew you couldn't fill the orders you had already previously accepted for delivery in 1940. And what would be that reason, Mr. Gibbons?

Mr. GIBBONS. Do you want me to say now?

Mr. FULTON. Yes. What is the reason why you didn't correct them?

Mr. GIBBONS. It would be presumptuous for us to try to correct the O. P. M. We have nothing to do with O. P. M., except we are one of many corporations, and if they came around and made an estimate, whether accurate or inaccurate, they are human; they have

made mistakes; we are human; we have made mistakes, and will make a great many more. I think the O. P. M. has done a magnificent service to the country, and every citizen in the country ought to be down on his knees thanking them for it, and I am one citizen who is willing to go down on his knees and thank these men who gave up their jobs and came down here and work for nothing. I think it is the handsomest contribution toward our needs I know of. They are splendid men; they are men of outstanding ability; and I think any effort to criticize them unduly in the face of the stupendous, practically impossible job they have to do is the height of ingratitude. That is what one citizen thinks about it.

Mr. FULTON. With respect to that, will you read the second paragraph of the release of the National Defense Advisory Commission, dated November 28, 1940, the paragraph listed as No. 1, where it says that the supplies appear adequate to take care of military requirements and present civilian requirements, with a sufficient surplus to permit some increase, and tell me whether you knew in November that that release, or a similar release, was being made public?

Mr. GIBBONS. I don't remember. I don't have the slightest recollection on the subject.

Mr. FULTON. Do you mean as the senior vice president of the Aluminum Co. you did not know the O. P. M. was saying there was sufficient aluminum for military and civilian needs?

Mr. GIBBONS. I knew quite definitely they did say that at one time. I knew quite definitely we believed that at one time. I know quite definitely, as the President of the United States has very wisely boosted the program, that you, nor no other man not gifted with the vision of a seer, is able to foresee what the needs of this country are going to be, and any effort to criticize these people for these mistakes they may have made in these estimates is entirely unwarranted. We have never taken any interest in them; we don't do so now. Our sole effort is to do what we can without biting at the heels of those men trying to do something. Our sole effort is to do what we can to hold their hands up and help meet this defense program. I have no sympathy with this effort to drag down good men and criticize them for doing a job that most of us are either incompetent or unwilling to drop our work and do.

Mr. FULTON. And have you anything further to add to that?

Mr. GIBBONS. No, sir.

Mr. FULTON. I was not talking about criticizing the people—

Mr. GIBBONS (interposing). You have been criticizing them ever since I have been here, for a day and a half.

Mr. FULTON. You may characterize it as you see fit, but now let's get down to brass tacks on this. What I have in mind is this: At that very time, apparently you were taking the position there wasn't sufficient aluminum to meet the civilian needs which you yourself had contracted to fill. Is that correct?

Mr. GIBBONS. No; that is not correct.

Mr. FULTON. Were you delivering the aluminum which had been ordered on orders which you had accepted prior to the 15th of August?

Mr. GIBBONS. To the best of our ability, we were.

Mr. FULTON. Were you delivering the aluminum? The answer would be "yes" or "no."



Mr. GIBBONS. To the best of our ability, and I will not answer yes or no unless so instructed by the gentlemen sitting here.

Mr. FULTON. I ask the chairman to ask the witness to answer yes or no to, Were you delivering the aluminum you agreed to deliver?

Acting Chairman MEAD. The chairman thinks that is a very fair question, and the witness ought to make an effort to answer as accurately as possible. The chairman recognizes the fact that you are a senior officer of this organization, and you will be very helpful to the committee if you will attempt to answer it within a reasonable degree of accuracy.

Mr. GIBBONS. Thank you, sir. I certainly have no desire to go contrary to the wishes of the Senators on this committee, but the gentleman asks a question that, it seems to me, is impossible for me to answer. We have taken civilian orders that we will never be able to fill until we get more aluminum or until the emergency is passed. That includes orders from others, it includes orders from our own subsidiaries.

Senator BREWSTER. Was that true last fall?

Mr. GIBBONS. That was true last fall. We had the orders on the books, but we won't be able to fill them. We frequently make a contract for a year or of some such time. Take the electric conductor business, we canceled millions of pounds of electrical conductors because we thought they could be substituted by some other material. We went to the Government and begged them to cancel some of their orders which we thought could be substituted by some other material. These orders of our civilian customers will be canceled or lie there until we can fill them—6 months, 12 months, 24 months away, I don't know.

Senator BREWSTER. I gather you understand what the objective of the committee is, to place as far as possible the responsibility for our lack of preparedness, and I gather that you feel that a large part of the responsibility is on the inability of any one human to foresee what this problem is going to be.

Mr. GIBBONS. That is correct, sir.

Senator BREWSTER. Of course, the Congress are not specialists in aluminum, and we did start last summer on a very extensive program, involving tremendous demands on our resources, and we created certain agencies to carry this thing out. And I am sure that you don't attribute infallibility to any human being.

Mr. GIBBONS. Certainly not, sir.

Senator BREWSTER. And you have suggested that everyone makes mistakes, so I don't think that the O. P. M. will require your defense. I think they are quite capable of taking care of themselves. They have been here before us and have testified about this problem.

Mr. GIBBONS. That is a good observation.

Senator BREWSTER. Whether this is all the fault of Mr. Hitler or whether intelligent, far-seeing men in this country, familiar with this problem, should have anticipated it, is what we are trying to determine.

You understand that there is a public feeling that possibly your interest in the aluminum business may have blinded you to certain of these things.

Mr. GIBBONS. May have done what, please, sir?

Senator BREWSTER. May have blinded you to some of these necessities. Last fall when Congress was about to meet and perhaps provide for Government aluminum plants, I take it that is more or less implicit in this situation. I am not an advocate of Government ownership or operation, but I think the questions are perfectly fair to try to place the responsibility for this pronouncement of last November which you now agree was pretty wide of the mark, is that not so?

Mr. GIBBONS. Yes, if the pronouncement says there is plenty of aluminum—which I believe Mr. Fulton said—for civilian and national defense, it was wide of the mark.

Senator BREWSTER. Now, that is most unfortunate in the position in which we find ourselves, and our committee is simply concerned with trying to avoid these mistakes in the future, and I know you want to help us out with all the information in your power.

Mr. GIBBONS. I certainly do, sir. I hope you don't get any other feeling. I have no desire to be other than helpful. I merely feel, Senator, that people have guessed wrongly. I think we are going to be just as wrong 3 months from now in our figuring—just as wrong today when we look at it 3 months from now, perhaps, as we are today, and I think these men like the President, his Cabinet, the Congress, if you please, the War and Navy Departments, have done their very best to estimate what was available. I think the O. P. M. had figures supplied to them from probably the best sources in this country, and in basing estimates on those figures, they arrived at something that turned out to be wrong, as future situations developed.

I know the Aluminum Co. has been quite wrong in our conception of how much aluminum was needed. I remember saying within a month when I heard that the new 8-D program might boost aluminum up beyond a billion pounds, "Why that is fantastic," and yet I was in Washington within a week, endeavoring to cooperate all I could with O. P. M. to create enough aluminum to build the 1,400,000,000 program. It may be 1,800,000,000, I don't know. I am merely saying I am sure there was nothing wrong in those guesses or estimates.

I don't think anybody erred outside of what you would expect of human beings under the circumstances. I don't think anybody could foresee what was ahead of us. I think the men who are leading the country have been wise in jumping up these requirements as they are doing, and I think the best we can do—and what the Aluminum Co. wants to do is to do everything it can to meet the requirements of what our leaders set up. That is all I can say. We don't feel, and have never felt it is up to the Aluminum Co. to rush in and wave our hands and tell the O. P. M., or anyone else, that they are wrong in their statements. We never see these releases, for example, until they have come out. We read them in the newspaper as you do, but I must say I can see nothing particularly tragic about this. Up until this very minute when we sit in this room, there hasn't been any airplane company lacking aluminum in any serious way. There is plenty of aluminum for national defense today, at this minute. There is no shortage of aluminum this afternoon for national defense. There may be a shortage next

month. I am not saying there will not be, but I am pointing out that the aluminum, the steel, the zinc, the copper, and the various industries of this country are keeping pace with the requirements of the Nation, and I hope they will keep pace.

If people like the Reynolds Co., and if people like the Government itself, and if people like the Aluminum Co. can be given the necessary capital, which the Aluminum Co. no longer can put up, be given the necessary power, we will do our part; there will be no shortage of aluminum. There is no shortage today, Senator, and there will be no shortage if everybody gets busy and puts up his money and his effort, I think.

Senator BREWSTER. Were you going over this situation last fall with the representatives of the Government?

Mr. GIBBONS. No; I didn't, sir. I have not contacted them, I think, at all in the year 1940.

Senator BREWSTER. For how long?

Mr. GIBBONS. I say I don't—I think our people may have, but I am merely pointing out that I myself didn't know anything about this, either the preliminaries or the reasons on which this statement was based, or what data led them to make what you gentlemen think now was perhaps an unwise conclusion.

Mr. FULTON. I was not suggesting that their conclusion was unwise. I was trying to determine the basis they had to make a conclusion, and the question I had was this: Did the Aluminum Co. inform them that it was incapable of making deliveries on civilian orders which it had accepted and had agreed to deliver before the end of 1940? In other words, did the Aluminum Co. inform the Government of that situation?

Mr. GIBBONS. Well, I really don't know, sir; I would tell you if I knew. I suspect we would have. I mean to this extent: If we saw that the orders for national defense were creeping up to a point where they were going to absorb all of our capacity, I don't doubt that we would have discussed it with O. P. M. I do remember, for example, that we were highly in favor of a priorities set-up because we thought that was a good way to handle the situation. We were just at a loss. We couldn't distinguish between two or three cooking-utensil producers who came to us for sheet and the fabricator of some other material which required sheet for civilian use. We felt that was outside of our province, and we were delighted to have better people than we are, fairer minded people perhaps, people that were free of prejudice, take this burden on. They did it in the last war. I remember very distinctly how we went through the last war when 96 percent of the aluminum produced in this country went to national defense. We had priorities committees then, and it worked out fine. It took us a while to get going, and it is going to take us a while to get going now.

Senator BREWSTER. Would you think it wise to have one of the big producers determine priority?

Mr. GIBBONS. No; I do not. I think the board that determines priorities should be quite ex parte, very independent people.

Mr. FULTON. With respect to this, did the Aluminum Co. itself in determining to refuse to deliver in accordance with orders that it had accepted, do that because it was substituting its own system of priorities which it had concluded it should then do?



Mr. GIBBONS. No; we had no system of priorities.

Mr. FULTON. In other words, was the refusal to deliver due to the fact that you couldn't produce what you had expected to be able to produce, or was it due to the fact that you were setting up a system of priorities of your own?

Mr. GIBBONS. It was due to the fact that we just didn't have the capacity to ship the material on the dates either when it was intended to have been shipped or when the customer wanted it.

Mr. FULTON. And was that because we were actually putting more aluminum into airplanes in November 1940 than had been estimated, because I had understood our production was a little slower than we had hoped?

Mr. GIBBONS. Well, I think it was due to the fact that defense needs were just pulling all the aluminum to their service rather than having it go to the service of civilian needs, and the Aluminum Co., in common with everybody, recognized the importance of giving defense needs priority long before there was any priority.

Mr. FULTON. And you did in effect give the priority by refusing delivery on what you regarded as nondefense needs?

Mr. GIBBONS. Yes. We don't refuse. You use such hard words, Mr. Fulton, you make me flinch.

Mr. FULTON. If you accepted an order and had the aluminum and did not deliver, what is it but refusal?

Mr. GIBBONS. We don't refuse. We hope to deliver some time. Here is a man who puts in an order for 100 pounds of aluminum on our books and says, "Ship it the 1st of September." We find we can't do it. We don't ship the 1st, and he gets after us on the 10th and says, "Why didn't you ship it?" and we say we can't do it now, we will do the best we can. By the time December comes, if we haven't shipped, you may call that refusal, but we never call it refusal.

Mr. FULTON. Then let's call it failure rather than refusal.

Mr. GIBBONS. Failure is a much better word.

Mr. FULTON. And the failure is due to the fact that the defense needs are so much greater there isn't enough for civilian needs. Is that correct?

Mr. GIBBONS. That is correct.

Mr. FULTON. And at that time you would disagree with the release as issued because you had already come to the conclusion that the civilian needs could not be fulfilled because of the necessity of taking care of the preeminent defense needs.

Mr. GIBBONS. No; I don't say I disagreed with the release, because I didn't know anything about it. How can I disagree with something I know nothing about?

Mr. FULTON. Had you known about it, you would have to take a different position?

Mr. GIBBONS. If Mr. Stettinius, whose name I see on the release, had come to us and said, "Here is a release. What do you think about it?" I think I would have said, "Let's study it and see what we think of it." And then we would have come back and said, "All right" or "No, we don't think you had better do it."

Mr. FULTON. In the light of what you have testified, you would have had to come back and say, "No, we are already refusing civilian deliveries because we are giving preeminent delivery to defense and we haven't enough to go around to both."

Mr. GIBBONS. We might have.

Mr. FULTON. Wouldn't you have had to if you told him what you told us this afternoon?

Mr. GIBBONS. I haven't told you anything categoric this afternoon. I merely said if conditions are as you described them—and they are conditions we don't know anything about—

Mr. FULTON (interposing). I don't like that "conditions we don't know anything about." The only condition I am talking about is the orders you know more about than I, namely, that the Aluminum Co. did accept orders, and I understand the answer was yes. Did they make deliveries? I understand the answer is no. Were the deliveries refused or not made for the reason that you had to give preeminent consideration to the defense and didn't have enough to go around to civilians? And I understood the answers were yes. Now, if there is any change in that, I would appreciate it if you would give us the change.

Mr. GIBBONS. I think that is a fair statement. If by priorities, did we accept orders in 1940, the answer is yes. "And why didn't you fill them?" the answer is because we sent the aluminum off to defend its country, as we have said in one of our advertisements.

Mr. FULTON. That being true, you could not truthfully have accepted as being accurate the statement made in that release, could you, that there was sufficient for civilian as well as for defense?

Mr. GIBBONS. I would say of this release, having just read it, so far as I know, for the first time—I don't recall—that that statement turned out to be inaccurate.

Mr. FULTON. It was already inaccurate by reason of your already existing failures to deliver.

Mr. GIBBONS. Mr. Chairman, may I be allowed to finish my statement? It is very unfortunate to have them interrupted, their continuity is so broken. I was saying there that I am quite sure that when Mr. Stettinius<sup>1</sup> issued this release, he thought he had reason for saying what he said. We weren't consulted about it, so far as I know, and I am sure we were not. I have no fault to find with the release except that the national-defense needs outstripped Mr. Stettinius' ability to foresee the future, which is no criticism of him.

Mr. FULTON. We are not criticizing Mr. Stettinius. I am asking simply this question. Reading that release in the light of what you have testified as to the facts which the Aluminum Co. then knew, if it saw that release it knew the release was not correct, did it not?

Mr. GIBBONS. I might have seen the release and thought it was quite correct, because I might have thought the war would be over in 3 months, in which case there was more than enough aluminum for civilian needs. I did think, in fact, last fall that there was a high probability of there being very much less need for defense aluminum than turned out to be the case. That was my error, but I recall distinctly thinking we were forging ahead, and where were we going to land out here? Suppose England was immediately conquered, as it looked very much as though it would be at times, and the war should suddenly subside, where would we land? I didn't know, but I thought we might land with a huge capacity here and

<sup>1</sup> Edward R. Stettinius, Jr., Director of Priorities, Office of Production Management, whose testimony before this committee appears in Hearings, Part 6.

nowhere to go, and Mr. Stettinius may have thought that, I don't know. But it involved seeing into the future, and there was a time back there when no doubt we had many unfilled orders, some of which are still unfilled today. That is all I can say to you, sir.

SENATOR BREWSTER. You don't think that England's defeat would lessen our necessities for defense, do you?

MR. GIBBONS. I don't know that I do, Senator.

SENATOR BREWSTER. You suggested that.

MR. GIBBONS. I did suggest it, and I often think how little right a person who is up to his neck in industry has to think of such things. I really did not think of it. I think it might increase.

SENATOR BREWSTER. I would say it would somewhat expand our requirements.

MR. GIBBONS. It might expand them. There was a time when I thought England's defeat would have been otherwise. I think there was a time in my thinking when I would have anticipated, had England gone down in 1939, that we could have maybe taken our time on it.

SENATOR BREWSTER. But no longer so?

MR. GIBBONS. If Mr. Hess flies to England, it necessarily makes me think differently than I did before Mr. Hess flies to England. Who knows what is going to happen tomorrow?

SENATOR BREWSTER. We are going to need some more aluminum.

ACTING CHAIRMAN MEAD. Mr. Gibbons, before you leave I just want to leave the thought with you that you might be under a misapprehension as to the necessity and perhaps the appropriateness of a committee of this character. By some of your answers, I assume you were a little bit out of patience with the attorney for the committee, in fact with anybody who might find fault with any of the representatives of the Government interested in the securing and making provision for matériel for the Army and Navy, particularly the O. P. M.

I think that is the wrong attitude, because this committee is a creation of the Senate, the Senate, of course, being interested in all of these various problems, and we find it very helpful in the course of our national defense program to gather all of this material, this information. In all the democratic countries—and particularly is it true in England—They have created royal commissions that are made up of the legislative body, with vastly more powers than are exercised by our ordinary investigating committees.

This is a precautionary committee. It is based perhaps upon the experiences we have had in the past. I was here in the post-war period when we had 116 investigating committees operating at one time—

MR. GIBBONS (interposing). I remember, sir.

ACTING CHAIRMAN MEAD. Trying to find out who was at fault, when the necessity for material and equipment was acute. That was done after the emergency was over and America was at peace.

I haven't any doubt but that the reports of this committee will be delved into by the attorneys representing your corporation, by countless attorneys representing various interests throughout the United States, by officers of the Government, by Members of Congress seeking material for speeches, and they will find in these



hearings perhaps very fine material unless we are able to remedy and vindicate what later might prove to be very serious charges.

Take, for instance, the case of your own company and the attitude of one who is opposed to the policy of your company. He would find in that German cartel arrangement, together with the fact that at a certain time you canceled a great many orders, and at that certain time the O. P. M. were issuing statements that there was a surplus of aluminum, and that at that certain time Mr. Reynolds and others were advocating the expansion of aluminum plant facilities to take care of an imminent shortage, and it will appear to the casual observer or to the listener that your company may have been very busy trying to belittle the prospects of a surplus, and that the O. P. M., that would naturally go to your company, which was the only company to go to, was announcing that there would never be any shortage, or that apparently there would be no shortage, while others were deeply concerned with what they were assuring the country was an imminent shortage.

Now you can see right in that little problem an opportunity for endless discussions that will be of no real value to your company, and so I think in the interest of a very successful national defense program, and in keeping with the democratic processes, and not to disparage the patriotism of the men who are serving the country so ably and so well in the O. P. M. organization, that we ought to sit around the table and expose to the light of publicity beforehand rather than after it is over, all of these various problems. And so, just as O. P. M. are deserving of credit and praise for their task, so are the members of this committee who are adding to their day's work, who are striving in their way to make a contribution toward national defense, and if we can bring out some very valuable information to those who are concerned with the progress of that program, or if by chance there are some in this program with an overdose of human selfishness, with a desire to secure favors for some particular organization or company, the admonition that they will receive from this committee might be very helpful to them and save them future embarrassment.

We hope that all the investigating that we will do will be helpful to your company, to every agency of the Government, to everybody interested in national defense, and that it will save the necessity of embarrassing investigations after this situation is over. And so we want you to go away with a kindly feeling for us, just as you have a kindly feeling for O. P. M.

Mr. GIBBONS. Well, Senator, you are most gracious to explain as you have done, and may I say that I appreciate it very much, and I have the kindest feeling, and also the greatest respect for you gentlemen. I just know you are doing a grand job and you are carrying all the burdens of the country, and you must carry them, and I thank God for you every night that I pray, which isn't often enough.

But I don't want you to feel that I have been a little caustic perhaps with Mr. Fulton. I certainly hope you Senators don't feel I have been with you. And I want to emphasize that anything the Aluminum Co. can do to facilitate the splendid work you are doing:

in these investigations, we are at your command and I will be glad to come down or send anybody else down.

Acting Chairman MEAD. Thank you very much, Mr. Gibbons. Before you leave us, I said the other day there was a large volume of potential power available if we could get the Canadian and American Governments to approve the added conversion of water at Niagara. I wasn't quite sure of the amount and so I sent a telegram up to the chamber of commerce at Buffalo, and I received this reply. [Reading:]

Replying to your telegram, from statements heretofore published I understand the Niagara Falls Power Co. has plant and machinery already installed through which it can divert and use 12,500 cubic feet per second of Niagara River water in addition to the amount now authorized and the company could produce about 110,000 kilowatts of additional power almost immediately after authorization of additional diversion.

If that additional diversion which can be granted without delay received the approval of both Governments, would you be able to use some of that power in your plant at Niagara?

Mr. GIBBONS. We will make you 110,000,000 pounds of aluminum, sir, out of it.

Acting Chairman MEAD. And that would, of course, increase the total production very substantially.

Mr. GIBBONS. Very much. I heard about that, and I wondered if you wouldn't want a job as hydroelectric engineer of the Aluminum Co. of America, because we hadn't thought of it.

Acting Chairman MEAD. This brings to light a matter which is receiving the attention of the Government, but it is receiving the attention of the Government in such a way that it will not be of any benefit in this national-defense crisis unless they change their attitude, and so if the committee can be helpful in bringing about the immediate use of this additional water diversion, we will be making a contribution.

Mr. GIBBONS. You will, sir.

Acting Chairman MEAD. That is what we are trying to do, and that is the reason for our work.

Mr. GIBBONS. Would you let me make one statement that is a corollary to your remarks? I think this committee can make a great contribution right along this important line. There is power available in this country from which within 6 months, within 6 months from this moment, we can have three or four or five hundred million pounds more of aluminum if we want it. Somebody has to make it available to people who can use it. You gentlemen can do it. You have the power; you have the influence. The electric power I think is available in our country and I think your suggestion, Senator, is excellent. If you care to have us make a study of this, cooperate in any manner, we have fairly capable men who would be delighted to be at your beck and call.

Acting Chairman MEAD. Mr. Fulton asks where you will get the bauxite, the raw material.

Mr. GIBBONS. There will be plenty of bauxite available. I hope you gentlemen will see that ships are available to haul up the Dutch Guiana bauxite as far as possible, too. That is important.

Acting Chairman MEAD. Thank you very much.

Is Mr. Folsom in the room?

Mr. Folsom, do you solemnly swear to tell the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. FOLSOM. I do.

**TESTIMONY OF M. B. FOLSOM, TREASURER, EASTMAN KODAK CO.,  
ROCHESTER, N. Y., FORMERLY WITH NATIONAL DEFENSE  
ADVISORY COMMISSION**

Acting Chairman MEAD. Mr. Folsom, will you state your name and connection for the record?

Mr. FOLSOM. M. B. Folsom, treasurer, Eastman Kodak Co., formerly connected with the National Defense Commission.

Mr. FULTON. Mr. Folsom, did you have any connection with the estimates of aluminum?

Mr. FOLSOM. Yes, sir.

Mr. FULTON. Would you tell us what that was?

Mr. FOLSOM. I would like to go back, if you don't mind, and make a short statement as to our position.

Mr. FULTON. Very short, if you could, because the time is getting late. We wish to hear you because you wanted to go back to Rochester.

**OUTLINE OF POSITION OF OFFICE OF PRODUCTION MANAGEMENT AS TO  
ALUMINUM ESTIMATES**

Mr. FOLSOM. I came to the Defense Commission in early June 1940, and was asked by Mr. Stettinius to help upon the raw material situation, particularly on aluminum. Later on I became head of the Division A, Metals and Minerals, so the estimates on aluminum were prepared under my general supervision, and the releases and statements of that sort.

When we first came here in June we found that the aluminum production in September 1939 was at the annual rate of 325,000,000 pounds. By June 1940, when we first arrived, it had been increased to 400,000,000. The only record we could obtain as to the requirements of the defense program was a statement prepared by the Army and Navy Munitions Board which had made similar studies of a number of similar raw materials.

Their statement at that time was that the maximum requirements for a 2-year emergency period would be at the rate of 480,000,000 pounds per year. At that time the production in this country was at the annual rate of 400,000,000 pounds, with 75,000,000 pounds available from secondary, which, on the face of it, would indicate from their figures that there would be enough to take care of the 2-year emergency.

The next statement we saw was one prepared by the Air Section of the Defense Commission, which was given us, which stated that if the 50-000-plane program were carried out over a 4-year period, the maximum requirements would be 150,000,000 pounds per year for airplanes. Those were the figures presented to us first.

Then we began working on that base. We soon found out with the airplane program which was then projected that some increase



in aluminum production would be necessary. It was at that time that representatives of the Defense Commission appeared before Congress and recommended an appropriation to T. V. A. be made so that an additional 60,000,000 pounds of aluminum would be available. That was in the summer of 1940.

When the British-aid program appeared, in September, our estimates indicated that an upward revision would be needed in the requirements. At that time we went to the Aluminum Co., then the only producer, to see what they could do about stepping up their production. They then decided to increase production by an additional 90,000,000 pounds at Bonneville, and we assisted them in getting the power from the Bonneville Power Authority. This increased capacity is now coming into production.

Prior to that time, in July, I think it was, we learned that the Reynolds Co. had obtained a loan from R. F. C. to go into the production of aluminum. We assisted them in getting the power which they would need from T. V. A. The records show the T. V. A. went on record in favor of helping them get the additional power they would need from T. V. A. That brought us up to the fall of 1940. Later on the program was expanded further both airplane and other military requirements, and along in January we made plans for an additional expansion. I left the Defense Commission in the latter part of January. The production which was at the rate of 400,000,000 pounds a year in June 1940 had been increased in January 1941 to 530,000,000 pounds and the plans for additional increases which we already had projected, and which were in process, would have brought the production in July 1942 up to around 710,000,000 pounds for the Aluminum Co., and 60,000,000 pounds for the Reynolds Co. In the latter part of January we made recommendation for further increase which would have brought in an additional 110,000,000 pounds so that by the end of January the production of ingot, actual and planned, both Aluminum Co. and Reynolds Co., would have amounted to 880,000,000 pounds by July 1942, compared with 325,000,000 pounds in September of 1939, and 400,000,000 pounds when we came down here in 1940. With the secondary supply of about 85,000,000 pounds our total supply for 1942 would have reached, sometime in 1942, 965,000,000 pounds. That is the actual increase which was made in the production and plans during that time.

I might say I don't think there are many other industries in the country that have been asked to make an increase to that extent.

In getting our requirements I mentioned the first estimates I made as to what the requirements were. Of course, we didn't want to rest on those. We got busy and tried to get the best estimates we could of what the requirements were going to be. We obtained from the Air Section, and they in turn obtained from the Army and Navy and from the suppliers the information as to the aluminum content for each type plane, the weight of propellers, frame, and so forth, and when we got that basic information, when a new schedule came along we could figure out how much aluminum was required. You must realize the schedules were being changed almost weekly or monthly. We had the basic figures on which we could estimate the aluminum requirements for airplanes.

Mr. FULTON. Was that done simply by multiplying the weight of aluminum in the plane without giving effect to the period or lag between the time it is produced as an ingot and the time when it is finally fabricated?

Mr. FOLSOM. I will come to that later. We got this basic information of the weight of different parts, the engine, propellers, and so forth, and we were able to estimate fairly accurately the net weight of aluminum required for these different planes. Then when the schedules were changed we would step up the estimates, and we were stepping them up all the time, and they are still stepping them up, I understand, in the last few weeks. So we were able to estimate fairly accurately the requirements for airplanes. But on the other military requirements we have never yet been able to get any basis for accurate estimates. The first estimates we obtained were from the Army and Navy Munitions Board, which simply took what they considered a 2-year emergency and what the military requirements would be. That is all we had to work with.

Then we started with the bills of materials and tried to figure out from them what the requirement would be. The Army and Navy gave us figures which when checking into it we found were really more guesses than estimates, and we put our statisticians and the Army and Navy people to work again. We got a figure which the Army and the Navy and the suppliers agreed on as being fairly accurate as to what the requirements were. That was the basis we used in making our statements last fall as to the total requirements.

Mr. FULTON. Did you take into consideration that lag feature?

Mr. FOLSOM. In the airplane we plan on having the aluminum there 4 or 5 months ahead of the scheduled delivery for the plane.

Mr. FULTON. You have to do that because of the trans-shipment, as well as the work involved?

Mr. FOLSOM. We plan on having the aluminum at the plant 4 or 5 months, in most cases 4 months ahead of the scheduled delivery of the plane.

Mr. FULTON. I wasn't talking about that. I was talking about whether you planned to have the fabrication take as long a period as it did by reason of the trans-shipments.

Mr. FOLSOM. Well, the trans-shipment didn't have very much to do with it. That takes very little time.

Mr. FULTON. In other words, when you say 4 or 5 months ahead—

Mr. FOLSOM (interposing). We meant the fabricated part, not the ingot. We planned on having the fabricated part, yes.

Mr. FULTON. How much time did you allow to fabricate?

Mr. FOLSOM. Our estimates were based on when the fabricated article would be produced.

Mr. FULTON. And who gave you that?

Mr. FOLSOM. Well, the suppliers did, the various fabricators. Another big job we had to do was to find out from the fabricators what their capacity was and what their planned capacity was. We spent 3 months trying to get that information, which was very difficult to obtain. We were finally able in the middle of December, for each type of fabricated article—tubing, sheet, roll, and so forth—to plot the projected capacity for the next 18 months. Then it was that we found we would be short in fabricating capacity of certain articles.

We had indications of that in the fall, and we took very active steps in the early fall to increase the fabricating capacity, especially of forgings, sheets and extrusions.

Mr. FULTON. Then in that case we would assume that there would never be any change in your estimates except for indirect military needs?

Mr. FOLSOM. No; we were working on the assumption that we knew that these estimates were going to be revised. Just the minute we would get up a revision, we would take steps to revise our requirement figures and our production figures, and ask the fabricators what they could do to increase the plant facilities. We were not working on the idea it was static. If we hadn't taken these steps, there would have been a shortage of aluminum fabricated articles for airplanes now.

Mr. FULTON. You mean if you hadn't taken the position that your estimates would not be adequate and that therefore you should supply a considerable amount of excess production, you wouldn't have enough today?

Mr. FOLSOM. No. What I meant to say was if we hadn't taken steps in the fall to increase the fabricating facilities, there would be shortage right now. That was the method which we used to arrive at the figures. We never have yet been able to get the accurate figures, however, for these nonairplane requirements, and that is where the big increase has come. The airplane requirements have been increased primarily because the program itself has been increased, not because our basic estimates were wrong.

On the military requirements, our estimates proved quite low, because no one had any idea that there was as much aluminum used in all the various products required by the Army and Navy today. Right now there are no accurate figures on it. Whether the present estimate is going to be high or low, no one can tell right now. I understand that a very detailed check is being made now to see if we can get some fairly accurate estimate of what the requirements are going to be. I am inclined to think that the present estimates are going to be high, but that is a pure guess.

Mr. FULTON. You mean by that that the Army and Navy aren't able to tell you the quantity of aluminum in the articles that they want, or do you mean that they don't know the articles that they want?

Mr. FOLSOM. If we could find out how much they would need in each article, we would be much better along than we are.

Mr. FULTON. We don't even know how much we need in each article?

Mr. FOLSOM. And we don't know how many articles we need, either. We do have the plan and the estimate of the number of articles required but we haven't been able to convert that into pounds of aluminum. That is true in zinc and brass and everything else. Of course, I don't blame the Army and the Navy for it. They have had a tremendous job and everything else, and it is just a very difficult task to do it.

Mr. FULTON. With respect to the testimony that you heard a half hour or so ago to the effect that the Aluminum Co. was not consulted as to whether there was sufficient aluminum to take care of civilian as well as military needs—



Mr. FOLSOM (interposing). I would like to clear up that statement.

Mr. FULTON. Will you explain whether that is so or not?

Mr. FOLSOM. Mr. Gibbons was not, as he said, here last year, 1940, when I was working on this myself. We got all the information we could from all the suppliers, the Aluminum Co. and all the fabricators, as to what their capacity was, and they also helped us in estimating what the requirements were. For instance, they had the exact figures as to how many pounds of aluminum were required in a certain type plane. If it looked all right to the aircraft experts, there was no need for us to go into all that figuring ourselves. So we got information from every source we could find.

Mr. FULTON. Then the Aluminum Co. was consulted as to whether it could supply the civilian as well as defense needs?

Mr. FOLSOM. We consulted them. They gave us the figures on their production capacity and projected capacity, not only ingot, but each fabricated article, and we also got figures from them as to what their estimate was as to the total civilian requirements.

Mr. FULTON. What I had in mind was, Did the Defense Advisory Commission issue that release that there was plenty of aluminum for civilian as well as military requirements without first knowing from the Aluminum Co. whether it was able to fill its orders as its orders were coming in?

Mr. FOLSOM. That statement didn't say exactly there was going to be plenty of aluminum. It said simply it was going to take care of the military requirements as then estimated. In every statement we said "as now estimated."

Mr. FULTON. But you also proceed in that statement—I think you might take a look at it—

Mr. FOLSOM (interposing). I know the statement very well.

Mr. FULTON. To say that there would be sufficient for civilian, and that there would even be a surplus for additional civilian.

Mr. FOLSOM. The statement that we made at that time was that our estimate indicated there would be sufficient aluminum to take care of the military requirements as then estimated, the 1940 civilian requirements, and that there would be something left over besides that.

Mr. FULTON. That is correct. What I have in mind is, Was that statement issued without even asking the Aluminum Co. whether it had been unable to fill its civilian orders?

Mr. FOLSOM. We knew that the Aluminum Co. and other companies also—not only aluminum, but everything else—were getting orders along last fall from people who were building up inventories, and we knew that they had on their books a lot of orders which were really not authentic orders as far as current requirements were concerned.

Mr. FULTON. Did you examine into the orders?

Mr. FOLSOM. We knew that general situation existed all over the country.

Mr. FULTON. You mean you knew it from your suspicion rather than actual investigation?

Mr. FOLSOM. We couldn't actually look into all the orders at that time.

Mr. FULTON. Now, with respect to your own company, the Eastman Kodak Co., they are a user of aluminum; are they not?

Mr. FOLSOM. It is a small item with us in our largest factory which makes photographic film and paper.

Mr. FULTON. But in the manufacture of cameras—

Mr. FOLSOM (interposing). In cameras we use aluminum but our stocks there were about normal.

Mr. FULTON. Did you increase your stock in 1940?

Mr. FOLSOM. Not that I know of. I am sure that our stocks right now are not any more than what we consider normal.

Mr. FULTON. What were your stocks at the end of 1940?

Mr. FOLSOM. I couldn't tell you offhand, but I am quite sure that they were not more. I know on some items they were below. We were short on some aluminum items.

Mr. FULTON. Would you furnish us with a comparison of your 1939 and 1940 orders<sup>1</sup> so that we may see whether your company was one of those that the Aluminum Co. failed to supply in accordance with orders you had in? Do you know of any such failure?

Mr. FOLSOM. Yes; I do know we have orders on hand now that we haven't been able to fill.

Mr. FULTON. Did you have any in 1940 at the time that these issues or releases were being put out?

Mr. FOLSOM. I don't know whether we had or not. I can look it up for you. I do think that we haven't built up an inventory.

Mr. FULTON. Will you furnish us with that information?

Mr. FOLSOM. What is it that you want?

Mr. FULTON. With respect to the comparison of your 1939 and 1940 orders and of the materials on hand in 1940 to see whether you, like Reynolds, were the recipient of failures to deliver on orders at that time.

Mr. FOLSOM. Of course you must realize that the failure to deliver was true not only of aluminum but of others. They simply couldn't fill orders on time.

Mr. FULTON. I was particularly interested in aluminum.

Mr. FOLSOM. I can give you that.

Mr. FULTON. And at the time that you knew that they were not filling the civilian orders, you disregarded that on the theory, with our investigation that that was because people were stocking up to get supplies that they didn't then need.

Mr. FOLSOM. Of course we didn't have any knowledge one way or the other that they had been or were turning down civilian orders. We knew that there were slow deliveries. Of course, I think our judgment might also have been that because we knew that the military requirements were running quite a little ahead of our original estimates. We thought—it turned out to be wrong—that was due to advanced buying on the part of some of the defense contractors. We know that was true to a certain extent, but it doesn't explain all of it.

Mr. FULTON. Then at that time you would say that you had not been informed by the Aluminum Co. that it was not only turning down orders but failing to deliver in accordance with orders it had accepted.

<sup>1</sup> Under date of June 26, 1941, Mr. M. B. Folsom submitted a list of comparable figures on inventories of aluminum for all the Eastman Kodak Co. plants; it is on file with the committee.

Mr. FOLSOM. I might say that we realized at that time that they were turning down orders for certain fabricated articles, but the difficulty was due to the lack of fabricating capacity rather than lack of ingot. There is a big difference between the two. For instance, we knew as early as last fall that they were not filling orders for high-strength sheet for buses or for streamlined trains, and things of that sort, because of the lack of rolling-mill capacity.

Mr. FULTON. But I was talking of ingot orders, and as to those you didn't know that they were turning down orders, much less that they were failing to deliver on orders they had accepted.

Mr. FOLSOM. No; we didn't know that they didn't have capacity at that time to fill the ingot requirements. That is correct, we did not know it, but we did know that they were not delivering all orders.

Mr. FULTON. What I had in mind is, Was it because you didn't ask or because they didn't tell you?

Mr. FOLSOM. Well, I think if they were turning down legitimate orders at that time because they didn't have the capacity to make ingot, we would have known it.

Mr. FULTON. That wasn't my question. Did you ask them that specific question as to whether they were able to make deliveries of the orders they had accepted?

Mr. FOLSOM. No; I didn't ask them that question.

Mr. FULTON. And why wouldn't that simple question be asked?

Mr. FOLSOM. As I said before, if they had not been able to meet the requirements, I think we would have heard about it.

Mr. FULTON. You assumed, because you hadn't heard about it, it must necessarily be meeting orders.

Mr. FOLSOM. As a matter of fact, we were getting information on the ingot production, and we were also getting the inventories.

Mr. FULTON. No; but what I was talking about was whether they were filling specific needs, and on that you assumed, because you hadn't heard complaints, that the needs were being fulfilled and there was no necessity for asking them the question as to whether they were in fact supplying the orders that they had accepted.

Mr. FOLSOM. Well, I didn't ask them that.

Mr. FULTON. I was asking, Why not? It was because, as I understood you, you assumed that, since you heard no complaints, it wasn't necessary to ask them.

Mr. FOLSOM. No; I wouldn't say that. I think that we were at that time, as I say, getting the figures from them as to their production.

Mr. FULTON. That isn't the point. I was asking about whether you had asked the Aluminum Co. whether it was filling the civilian orders it had accepted, and, if not, the reasons why.

Mr. FOLSOM. Well, I think we did ask them a number of times and found in most cases, we thought—and I think we got the impression from them probably—that it was due to the lack of fabricating facilities rather than of ingot.

Mr. FULTON. I was talking of ingot. The point is, Did you ask them on ingot?

Mr. FOLSOM. I must have. I am not sure. I can't remember that.

Mr. FULTON. If you did ask them, did they give you the facts as Mr. Gibbons has testified, or did they tell you something other than that?



Mr. FOLSOM. We have found that they have given us the facts and have been very reliable people to deal with.

Mr. FULTON. Then did you know at that time that they were refusing or failing—whichever term you prefer—to deliver on orders that they had accepted for delivery in 1940?

Mr. FOLSOM. This situation with the Reynolds Metals was brought to our attention, and we worked quite a long time to try to straighten it out, but whether it was back in November or December, I am not sure of the dates. I know that it was brought to our attention at one time, and we got both companies together—the Reynolds Co. and the Aluminum Co. officials—to see if we couldn't work out a satisfactory arrangement and what deliveries should be made by the Aluminum Co. to the Reynolds Co. I don't recall the exact date of that.

Mr. FULTON. Then you knew specifically that at least as to one company there was a failure to deliver in accordance with orders that had been accepted.

Mr. FOLSOM. I don't know whether that was at the time of this release or not. I am not sure as to the dates on that. Of course, there are a number of factors involved in that.

Mr. FULTON. Could you check up that and write me with respect to that?

Mr. FOLSOM. There are a number of factors involved in this case.

Mr. FULTON. In addition, at the time that you found that they were failing to deliver to the Reynolds Co., did you ask them the question as to whether they were failing to deliver to anybody else?

Mr. FOLSOM. Yes; we went into the whole situation at the time of the Reynolds Co. discussion.

Mr. FULTON. You mean, then, that they were failing to deliver to a number of other people in addition to Reynolds.

Mr. FOLSOM. I think that was—I am sure that was after the statement was released.

Mr. FULTON. After this statement of November 28?

Mr. FOLSOM. Yes.

Mr. FULTON. Will you make sure of that by furnishing me with the dates?

Mr. FOLSOM. Yes.

Mr. FULTON. And at that time, what statement did you issue to correct the erroneous impression created by the November 28 statement?

Mr. FOLSOM. Well, we didn't find out until along in January or February that our estimates were wrong.

Mr. FULTON. You mean that until January or February you didn't know that there had been a failure to deliver to Reynolds and these other people?

Mr. FOLSOM. I think the failure to deliver to Reynolds doesn't necessarily mean that there wasn't enough aluminum to go around.

Mr. FULTON. I didn't say that.

Mr. FOLSOM. But that would have quite an effect on whether we got out another statement or not.

Mr. FULTON. Did you at the time you heard of the Reynolds thing, ask whether the failure was also a failure to other people who had made orders in addition to Reynolds?

Mr. FOLSOM. I imagine we went over the whole situation with them.

Mr. FULTON. Do you know whether you did?

Mr. FOLSOM. I am not positive of it, but we would follow it pretty closely. I am inclined to think we would have.

Mr. FULTON. You wouldn't now be able to tell me positively whether you did or didn't. Is that it?

Mr. FOLSOM. I wouldn't know absolutely. I wouldn't want to make a statement.

Senator BREWSTER. Did you mean that the failure to deliver to Reynolds might be due to other reasons than shortage?

Mr. FOLSOM. Well, it might at that time. The general understanding was that there would be no aluminum sheet exported, and it might be that the Aluminum Co. would have turned down orders for export and be asked to furnish ingot to some other fabricator who might accept orders for export. That is one situation. I don't say that would be true in the Reynolds case. I know that was the situation brought to our attention in the case of some fabricators. It might also be that some fabricator would want to get a bigger supply than he really needed. People thought that it was good policy to build up inventories of metals last year. If they filled every order that they received the shortage would develop much quicker. We thought it was only natural that they would scrutinize some orders from the fabricators.

Mr. FULTON. When did you ask for a list of the inventories that people had of aluminum?

Mr. FOLSOM. We asked for inventories on January 1, I think, and later from the industry as a whole, sometime later, I think it was.

Mr. FULTON. If you were proceeding on the assumption that people were building up unnecessary inventories, why, before relying on that, did you not ask for inventories at a much earlier date, such as September or even August?

Mr. FOLSOM. Of course, we didn't realize that the shortage was going to develop as quickly. I mean we didn't know last September that we were going to have this situation we have now. We probably would have clamped down on priorities at that time rather than later if we had.

Mr. FULTON. As it stands, you assumed that the orders that were not being filled by reason of the failure of the Aluminum Co. were orders that were building up unduly large inventories, and assumed that without asking what the inventories were of the companies in question. Is that right?

Mr. FOLSOM. When this Reynolds matter was brought to our attention, we then asked inventory figures of the two companies.

Mr. FULTON. Did you ask for the inventory figures of the other people the Aluminum Co. was failing to deliver to?

Mr. FOLSOM. No; we didn't.

Mr. FULTON. Why did you assume that they were all engaged in the practice of building up large inventories?

Mr. FOLSOM. We didn't assume that at all.

Mr. FULTON. If you didn't assume that, you must have assumed that there wasn't sufficient aluminum to take care of the civilian needs, and in that case why didn't you correct the false statement that there was sufficient aluminum for civilian needs?

Mr. FOLSOM. I will try to point out that the fabricating had a lot to do with it. The complaints we were getting from people about not being able to get all the aluminum they wanted had to do with the fabrication rather than with ingot. It was only until late in January and February that we realized and felt that there was going to be a shortage in the ingot itself. Most of our trouble all last fall was in fabrication. When I left in January, and in early February, our chief headache was forgings. The aircraft companies were having difficulties getting forgings on time. We had some inkling of that in the early fall, and we had urged the fabricators to increase their forging capacity, and a lot of new hammers had been put in. I understand now that the new hammers have been installed and that there is practically no delay in forgings.

Mr. FULTON. But talking of ingots, you didn't ask the question of the Aluminum Co. as to whether they were making deliveries of ingots?

Mr. FOLSOM. As I said before, we talked to them about the Reynolds situation but it was only along in January and February that we realized that there was going to be a shortage in ingot.

Mr. FULTON. That is all I have.

Acting Chairman MEAD. That is all, Mr. Folsom. We appreciate your appearance. Thank you for your testimony.

The committee will meet tomorrow morning at 10:30, at which time we hope to hear Mr. Holden of O. P. M. Until then we will recess.

(Whereupon, at 5:40 p. m., the committee recessed until 10:30 a. m., Thursday, May 15, 1941.)





# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

THURSDAY, MAY 15, 1941

UNITED STATES SENATE,  
SPECIAL COMMITTEE INVESTIGATING THE  
NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:30 a. m., pursuant to adjournment on Wednesday, May 14, 1941, in room 318, Senate Office Building, Senator Harry S. Truman (chairman) presiding.

Present: Senators Harry S. Truman (chairman), Mon C. Wallgren, Joseph H. Ball, Ralph O. Brewster, and James M. Mead.

Present also: Hugh A. Fulton, chief counsel; Charles P. Clark, associate chief counsel.

The CHAIRMAN. The committee will come to order.

Mr. Holden, you will hold up your hand and be sworn.

Do you solemnly swear that you will tell the truth, the whole truth, ad nothing but the truth to this committee in everything that you have to say, so help you God?

## TESTIMONY OF GRENVILLE R. HOLDEN, CONSULTANT ON ALUMINUM AND MAGNESIUM, OFFICE OF PRODUCTION MANAGEMENT

Mr. HOLDEN. I do.

The CHAIRMAN. Give the reporter your full name.

Mr. HOLDEN. Grenville R. Holden.

The CHAIRMAN. What is your present connection with the Government, Mr. Holden?

Mr. HOLDEN. I am consultant on aluminum and magnesium.

The CHAIRMAN. What were your connections before you came to the Government?

Mr. HOLDEN. For the 10 months before I came to the Government I was with the Eastman Kodak Co. Before that I was teaching at Harvard University.

The CHAIRMAN. Proceed.

Mr. FULTON. What was the subject that you taught?

Mr. HOLDEN. Economics.

Mr. FULTON. And what is your position with the O. P. M.?

Mr. HOLDEN. Consultant on aluminum and magnesium.

Mr. FULTON. And would you tell us something of your duties with respect to estimating supply and demand, and making provision therefor?

Mr. HOLDEN. Well, if I may, I think I would like to pick this up where Mr. Folsom left off last night.

Mr. FULTON. Please do that.

ESTIMATES OF DEMAND FOR ALUMINUM BY OFFICE OF PRODUCTION  
MANAGEMENT

Mr. HOLDEN. I think he brought you up to January when he left. Shortly after he left, and early in February, Mr. Knudsen signed a directive which appointed a new unit, the Scheduling and Priorities Unit, at Wright Field, as the sole agency to determine aircraft requirements. At the same time, of course, we in the O. P. M. have made efforts, while waiting for Wright Field to give us new requirements, to continue, as we have before, to revise requirements in the light of changes in the aircraft program.

I think Mr. Folsom told you that in the beginning the estimates were made by determining per-plane weights for aluminum sheet, sand castings, forgings, and so on. Then those weights were multiplied by the number of planes per month in the program and set forward 5 to 6 months to get to the delivery date which was necessary, on which it was necessary, for the aircraft companies to have aluminum. Between the time when those per-plane weights were first estimated and the time when the priorities unit at Wright Field was set up, continuous efforts were made to improve on the per-plane weights.

Shortly after Mr. Folsom left we got a new aircraft program, 8-C, and we, accordingly, revised our aluminum requirements on the basis of the corrected per-plane weights that we had been able to obtain. This revision showed that we needed more aluminum ingot than had previously been provided. Accordingly, we made recommendations that the Aluminum Co. be instructed, or some other company be instructed, to increase its capacity, and in order to lay the groundwork for such increase in capacity, we made efforts to obtain 97,500 kilowatts from Bonneville. The result of that effort was—let me see—65,000; no, 75,000 kilowatts, of which 60,000 went to Reynolds Metals Co. for construction of new pot rooms, and 15,000 went to the Aluminum Co. for use in pot rooms which were already established.

Since that time we have had two further changes in the aircraft program, and as a result of each of these changes we have made recommendations for increases in the amount of aluminum needed.

Since February the Priorities and Scheduling Unit of the Air Corps has been concerned mainly with the priorities aspect. They made an attempt to schedule the requirements which the aircraft companies themselves say they have to have month by month, and they have not, as yet, been able to give us a complete check on the per-plane weights that we have been using. But their work with the aircraft companies indicates that our estimates have been low, way low, and they are now engaged in an attempt to reconcile these estimates, to find out where the mistakes are, just exactly what was wrong with the previous estimates. We don't know yet what was wrong with them.

Our latest recommendation is based on the higher estimates, on the estimates from Wright Field. I think Mr. Batt told you on the first day of testimony that we are now counting on an aircraft requirement of 75,000,000 pounds per month at peak, and that peak will be reached sometime early in 1942.



Now, at the same time that we have been making these revisions in aircraft requirements we have been trying to improve our estimates as to what the services will need for other military requirements. Chiefly, the increases in estimates have resulted from their obtaining better information as to the items which they are going to require and also from their working out bills of materials on those items. I think that that division of our estimates accounts probably for the greatest difference as of this date in the estimates of what we had thought we would have to ship, say, in May, and what we are actually having to ship in May. I think we estimated that we would have to ship in May something like 5,000,000 pounds.

Mr. FULTON. Five million?

Mr. HOLDEN. Five million pounds for other military requirements, other than aircraft. Actually I think we are having to ship somewhere between four and five times that much. We don't know yet whether that is a requirement in fact, or whether the services may perhaps be ordering in some cases for their needs that will not materialize until late in this year, or perhaps in 1942. We are investigating that point now. That is being investigated along with the reconciliation of aircraft requirements.

Mr. FULTON. You would agree, then, I take it, with Mr. Folsom, that at the present time, at any rate—no, I think it was Mr. Cliffe—we don't know the quantities of aluminum which would be required for the other than airplane military articles, much less the number of such articles?

Mr. HOLDEN. Oh, yes; I would agree with that. I doubt if we ever will know. I think what we have to do is make the best guesses we can, and we are pretty sure they will be wrong.

Mr. FULTON. It wouldn't be a matter of a guess to know how much aluminum would go into a specific article, would it? It would be a matter of obtaining the bill of material for the article.

Mr. HOLDEN. Mr. Fulton, it is a guess until the Army and Navy themselves know how much of these items they want, and also until they specify the materials to be used in the items.

Mr. FULTON. I wasn't talking about how much they wanted, but the question is, the items that they have ordered. I should think they could give you a bill of materials on those that would not be a guess, but would be a very accurate statement of what would be needed.

Mr. HOLDEN. That is quite true—

Mr. FULTON. What I meant was, have you got such bills of materials today?

Mr. HOLDEN. Oh, yes. We have had bills of materials on the items which they knew they were going to need, and the mistakes in the estimates have not been there, if there have been mistakes. I think it is probably a little strong to say they have been mistakes. The fact is, we just didn't know how much of these items the services wanted, and in many cases the materials were not specified. In other words, we didn't have bills of materials, and the differences in what we are shipping now as compared with what we thought we would ship last October and November, lie chiefly in the improved information that the Army and Navy have of their own requirements.

Mr. FULTON. I was trying to ascertain what information they gave you back in the fall of 1940 as to articles, because I would have as-

sumed that they would have told you. "We are expecting to use so many hundred or thousand of this article."

Mr. HOLDEN. I think you may be interested in how we went about getting that information.

Mr. FULTON. If you would.

Mr. HOLDEN. I don't remember the exact date; I think it was probably in October or November. We arranged two conferences, one with all the agencies of the Army and the other with all the agencies of the Navy, which would be concerned with purchases of items containing aluminum. At these conferences we had representatives of the Aluminum Co. and of our own Bureau of Research and Statistics which, incidentally, has given us in the main the estimates on military requirements. At those conferences we attempted to reconcile certain differences which we had found as between the estimates of the Aluminum Co. as to what an item would require and the estimates that the services had made as to what an item would require.

As a result of those two conferences the Bureau of Research and Statistics had a series of conferences; in fact, I think they worked continuously for a period of 3 or 4 weeks with both branches of the services, to try to iron out any differences, reconcile them and give us what, at that time, appeared to be a sound estimate as to what they needed.

When we had finished, the resulting estimates were accepted as correct by both branches of the services. That was the basis at that time, and that process of working together has gone on ever since. Every time either branch of the services arrives at a new estimate, either as a result of changes in specifications or as a result of addition of new items to the program, they have in practice informed us of those changes, and we have added them to our estimates.

Mr. FULTON. Now at that particular point, when you say the services gave you estimates, did they give you estimates in the nature of saying "We expect to produce so many of this particular item, so many of that item, and each of those items has a bill of materials as follows, so far as aluminum is concerned?" So many pounds of this material or that?

Mr. HOLDEN. As far as I know, that is correct.

Mr. FULTON. I mean, have you yourself examined such—

Mr. HOLDEN. No; I have not examined the bills of materials, except in a very cursory way. As I say, that work was done mainly by our Bureau of Research and Statistics.

Mr. FULTON. But there would definitely, at the time the Army or the Navy planned a program of building certain equipment, be a bill of materials which they would send over to the O. P. M. for study there by someone as to how much aluminum was to be put into it?

Mr. HOLDEN. No; not always. In fact, there were many items on which we could get no bills of materials at the time. I think I explained to you that in some cases they had not been able to specify materials. There were a good many items that you might have looked over and we looked over last fall for which there were no bills of materials, and in those cases we made the best guesses we could as to whether or not they contained aluminum and how much, as a tentative basis, pending determination by the services as to exactly what they wanted.

Mr. FULTON. Did not the services give you a guess? I should think they would have known more about whether it was to be made of aluminum or not.

Mr. HOLDEN. These guesses were made, Mr. Fulton, along with the services. The Bureau of Research and Statistics assigned two or three people to each of the branches, and on those items where they had questions they worked together with the services, but none of those estimates bore the final approval of the services until the services themselves had listed their bills of materials and informed us accordingly.

Mr. FULTON. Would you tell us something of the background of experience of these gentlemen who are making these guesses, as to what the material would be, and particularly will you tell us what manufacturing or constructing experience they had had with respect to items of the type they were making the guesses on?

Mr. HOLDEN. Well, I am afraid I couldn't tell you that. I don't know them that well.

Mr. FULTON. Can you tell us, in general, whether they were men who were manufacturers of kindred materials?

Mr. HOLDEN. No; I don't believe so. I think that they were in the main statisticians. I don't know whether they had had manufacturing training or not.

Mr. FULTON. In the main they were people who had had experience in analyzing statistics, as distinct from experience in manufacturing articles of similar kind?

Mr. HOLDEN. I say that is my impression, but I am guessing.

Mr. FULTON. Then of course they would be, in making up any estimates, simply relying on such published statistics as they might find?

Mr. HOLDEN. No; I don't believe that is a fair statement.

Mr. FULTON. What would they be relying on?

Mr. HOLDEN. I would say rather—well, take a concrete case, a gun mount for a mortar. These mortars have to have a recoil check. That recoil check digs into the ground. It could be made of a number of materials. It could be made of steel, it could be made of cast iron (which would probably break), it could be made of aluminum; it could be made, probably, of other materials, nonferrous alloys. Now, we don't know what aluminum to allow until the Army specifies as to whether or not they want to use a recoil check made of aluminum or made of steel, and I don't believe that the person would have had to have very much technical knowledge to have made a calculation on the basis of the number of such items they wanted, once they had specified aluminum.

Mr. FULTON. But now when you didn't know whether they would or would not specify aluminum, how could he make any estimate?

Mr. HOLDEN. He couldn't.

Mr. FULTON. And the fact would be that he didn't.

Mr. HOLDEN. Presumably so.

Mr. FULTON. Would you continue with your views with respect to this?

Mr. HOLDEN. In going over these questions something occurred to me that I think would interest the committee in the light of the discussion that has gone on about estimates.



I made a special point of checking, after the discussions yesterday, exactly what we are shipping as of this date, as compared to the estimates that we made last fall, last November. I find that we are now shipping about 27,000,000 pounds in May. I think the May allocations are 27,000,000 pounds for aircraft. The estimates that we made last fall were net of scrap. When you ship sheet to an aircraft company, the aircraft company cuts up the sheet, and as a result of that cutting up there is a lot of scrap. If you include the scrap, that gives you the gross shipment. Taking those gross shipments and putting our estimates of last fall on a comparable basis, we are shipping, allocating this month to aircraft, 27,000,000 pounds, which was about what we estimated last fall we would have to ship in July. We made the mistake of allowing only 4 to 5 months' advance delivery of aluminum, as compared with the 8 months or somewhat longer that the aircraft companies now say they require.

I think you see that if you allow 8 months, the estimates that we made last fall, in terms of aluminum, seem to be fairly accurate. They are still holding up.

Mr. FULTON. On that particular item.

Mr. HOLDEN. On the aircraft. That is all aircraft, on ingots.

Mr. FULTON. That would be on the aircraft as planned last fall, without expansion of program?

Mr. HOLDEN. Well, as it happens, you see, the program has not expanded as of this date. Most expansions that we talk about apply to the peak. Between now and the peak it is almost impossible to increase the aircraft program. In other words, we are going forward as fast as we possibly can, and we are not turning out more aircraft now than we thought last fall we would be.

Mr. FULTON. With respect to the airplane production, actually the production has not kept pace, has it, with the earlier anticipations, so that from that standpoint there ought to be an easing of the aluminum situation?

Mr. HOLDEN. Well, yes, except for this mistake that we made in the advance delivery required for aluminum. I say we allowed only 4 or 5 months, whereas we are informed now that the aircraft companies ought to have about 8 months under existing conditions. The normal delivery time before this emergency was about 4 months; less, in the case of engines.

Mr. FULTON. Did you work in preparing these charts or graphs that show rising needs for aluminum, together with rising production of aluminum?

Mr. HOLDEN. Oh, yes.

Mr. FULTON. The two keeping very close?

Mr. HOLDEN. Yes; I worked on those charts.

Mr. FULTON. And in looking at the chart, I note that there wasn't very much reserve or excess of capacity over what you expected your production requirements would be.

Mr. HOLDEN. I think you have a chart dated October 18, is that right?

Mr. FULTON. October 14; yes.

Mr. HOLDEN. Fourteenth.

Mr. FULTON. Is that a chart you prepared?

Mr. HOLDEN. I didn't prepare the chart, but the chart was prepared under my direction and with my approval.

Mr. FULTON. And were you familiar with the negotiations that took place to obtain the increase in production that was thought to be necessary, even under that chart?

Mr. HOLDEN. In October?

Mr. FULTON. During 1940.

Mr. HOLDEN. I went into the Mining and Metals Section in September although I came to the Commission in June, and it took me about a month to find out, to get well enough acquainted with the information to take much part in the discussions, but I would think that as of that date I probably did take part in some of the discussions.

Mr. FULTON. Would you describe for us the discussions that were had with various producers or possible producers of aluminum for the purpose of increasing the production of aluminum, and also for the purpose of obtaining sufficient alumina and bauxite and adequate reserves of bauxite?

Mr. HOLDEN. Well, that is a long time ago and I haven't thought about it for some time. If you will bear with me a moment, perhaps I can recall some of it.

Previous to that date, or as of that date, the Reynolds Metals Co. was proceeding with plans to produce 60,000,000 pounds of aluminum in the T. V. A. area. As I recall, I think Mr. Folsom told you that the Commission had assisted in obtaining power from the T. V. A. for that production. I was not in the Mining and Metals Section at the time. I don't recall exactly what recommendations were made as between October and November, October 18 and about the last of November. I am not sure that there were any. As I recall it, I think that chart you have showed what the situation was as planned on that date. It may be, of course, that there were recommendations made, but the earliest recommendations I remember were based on the November revision of the aircraft program.

Mr. FULTON. What negotiations, if any, have you participated in with respect to possible production by someone other than the Aluminum Co. or Reynolds?

Mr. HOLDEN. Well, there were discussions held with Bohn Aluminum & Brass Co., but that was before I entered the Division and the Bohn Aluminum Co., as I recall—and this is second-hand information—was not interested in going into the production of aluminum with their own funds and, as I recall, they were not especially interested in going into it at all.

The CHAIRMAN. At what time are you speaking of?

Mr. HOLDEN. I say this is second-hand. I don't know when these discussions took place. They must have taken place before October.

Recently the Bohn Aluminum Co. wrote us a letter stating that if the Government decided to go forward with the construction of aluminum plants with Government funds, that they would be interested; they offered their services, as I recall, in operating one of the plants. I wrote them in reply to that letter that as of that date the Government was not considering the use of Government funds for construction of an aluminum plant, but that if the Government did undertake to construct an aluminum plant with its own funds, we would communicate with them and give full consideration to any application they wanted to make.

A few days ago it was decided that this program could not be carried out altogether with private funds, if at all, and accordingly

we have communicated with the Bohn Aluminum Co., and I believe they are to be here this afternoon to discuss whatever proposal they want to make.

Mr. FULTON. And when did you communicate with them?

Mr. HOLDEN. I think it was 2 or 3 days ago.

Mr. FULTON. And would you tell me—

Mr. HOLDEN. May I point out one point. It has been within the last week, I think, as Mr. Batt told you, that this new bomber program has given us such an increase in aluminum requirements. This increase means an investment on a scale that will stretch the resources, would stretch the resources, of any private company, even of a company as strong as the Aluminum Co. appears to have been. Consequently it is only within the last week that the question of Government financing has come to a head.

Mr. FULTON. By that you mean, "has been considered," rather than "come to a head?"

Mr. HOLDEN. Oh, no; I say "has come to a head." It has been considered for some time.

Mr. FULTON. Considered in the sense that you ruled out the possibility of considering it further?

Mr. HOLDEN. Well, I don't know whether I would say it that way. I think that it has been considered right through. For example, we have had conversations with Reynolds Metals Co. within the last month—oh, I think as long as a month ago—on the possibility of Government financing, and no decision was taken, but that idea has been constantly in mind.

Mr. FULTON. I note that whether you term it Government financing or not, the Aluminum Co. is refusing to go ahead and produce any electric power, even on its Fontana project. I believe you were here yesterday and you heard the senior vice president make a categorical refusal on their part to consider building the Fontana project, at least if they had to comply with the requirements of Congress.

Mr. HOLDEN. I heard much of what he said. I think that ties in with my understanding.

Mr. FULTON. So that at least as to the power, which is the bulk of the capital expenditure, the Aluminum Co. isn't contributing anything on that score, is it?

Mr. HOLDEN. On electric power? Not other than their Nantahala and Glenville developments.

Mr. FULTON. In other words, the developments that they had started in 1939 they did not stop.

Mr. HOLDEN. As a matter of fact, I don't know when they did start the developments, but I do know that they are not engaged in any other power developments.

Mr. FULTON. And now, with respect to the financing of these plants, wasn't it known in February that you didn't have enough aluminum?

Mr. HOLDEN. Was it known in February that we didn't have enough aluminum?

Mr. FULTON. That your estimates were too close to your total capacity.

Mr. HOLDEN. I would say that it was known in January that we didn't have enough aluminum.



Mr. FULTON. And as a matter of fact I think Mr. Cliffe, on the 14th of February, made a written notation that

an over-all production just about equal to the calculated total requirement in a rapidly expanding situation did not indicate to me that customers could be kept adequately supplied with each item. It seemed unwise to give optimistic publicity if there was the slightest doubt about the fulfillment of the rosy promises.

Do you remember that?

Mr. HOLDEN. I do remember it and agree.

Mr. FULTON. And yet 2 months later, I believe, you informed Mr. Den Uyl, manager of the Bohn Aluminum, that the Army and the Government would not be interested in financing or considering the financing of any aluminum plants so long as the company then in business, which could only be the Aluminum Co., was prepared to expand with private funds.

Mr. HOLDEN. I don't believe I used the words you used, Mr. Fulton.

Mr. FULTON. Were the words you used as follows:

As you know, the Army is not disposed to finance expansion of industrial capacity with Government funds as long as any company is prepared to expand with private funds. In the event that we are unable to secure adequate expansion on the basis of private financing, we shall take up with you in greater detail the possibility of your entering into production of aluminum metal.

Mr. HOLDEN. That is quite true. If you note, all the expansion that had taken place up to that time had been on a commercial basis.

Mr. FULTON. But it was then known to you that the Aluminum Co. would not produce any power for the plants that it had in mind, and that any funds that it would consider using would have to be on the basis of the Government supplying the power; is that right?

Mr. HOLDEN. No. Until I heard Mr. Gibbons say so yesterday, I was not aware that the Aluminum Co. had taken such a position. I don't want to imply that I think they should or should not have produced power, but to my knowledge they had never said they would not.

#### UNWILLINGNESS OF ALUMINUM CO. OF AMERICA TO CONTINUE FONTANA HYDROELECTRIC PROJECT WITH ITS OWN CAPITAL

Mr. FULTON. Did you know the Aluminum Co. was refusing to go ahead with the Fontana project?

Mr. HOLDEN. I knew the Aluminum Co. was unwilling to go ahead with the Fontana project.

Mr. FULTON. You substitute "unwilling" for "refusing." Just where did you think the power for that project was to come from?

Mr. HOLDEN. I might add to that that they were unwilling to go forward with the Fontana project with their own money. They said they were willing to build it for the Government, or they were willing to make any arrangement which would get power to make aluminum.

Mr. FULTON. Did they so state to you?

Mr. HOLDEN. They did.

Mr. FULTON. In writing?

Mr. HOLDEN. I don't recall whether it was in writing or not.

Mr. FULTON. Can you furnish me any such writing?

Mr. HOLDEN. No; I don't believe I could.

Mr. FULTON. Who made the statement to you?

Mr. HOLDEN. Well, as I recall, the statement was probably made two or three times.

Mr. FULTON. By whom?

Mr. HOLDEN. In conferences with two or three different members of the company. I don't want to put words into anybody's mouth, and I tell you this is my impression. I think that in several discussions with the Aluminum Co. that they had expressed the willingness to build Fontana, or I will put it this way; that they told us that they were willing to make any arrangement for purchase of power at Fontana that would get aluminum, or that they were willing to build a plant for the Government, build a power dam for the Government, under any of the financial plans that the Government customarily has provided.

The CHAIRMAN. Who represented the Aluminum Co. at these conferences?

Mr. HOLDEN. I had, as I remember, a discussion with Mr. Ewing,<sup>1</sup> I think, in March, at which Mr. Ewing made a number of different proposals. I think one of the proposals was that the Aluminum Co. would be willing to build the Fontana Dam on an emergency plant facilities contract or on a defense-plant contract, with an option to T. V. A. to take over the dam when the emergency was over. Another proposal was that the T. V. A. should take over Fontana. I think Mr. Ewing proposed that T. V. A. should take it over for the cost of the dam to the Aluminum Co., plus carrying charges, or whatever that was.

Mr. FULTON. Plus what?

Mr. HOLDEN. Carrying charges.

Those are the two proposals that I remember.

Senator BREWSTER. What were you prepared to recommend?

Mr. HOLDEN. I wasn't prepared to recommend anything. I wanted to get aluminum. Rather, I would say I was prepared to recommend anything that would get aluminum.

Senator BREWSTER. Was Mr. Ewing correct in his statement that you were prepared to recommend construction by the Government with a 5-year lease and an option of purchase by the Aluminum Co.?

Mr. HOLDEN. He may have inferred that from what I said, but my only interest in submitting these proposals, or in entertaining the proposals at all, was to get aluminum, and I might point out there that even if I had so stated, my recommendation alone would not have been enough to have obtained anything that the Aluminum Co. wanted, any proposal that they wanted.

Senator BREWSTER. I wasn't raising the question as to your power or authority, but simply as to the accuracy of the statement which, as you know, Mr. Ewing incorporated in his letter.<sup>2</sup> You were here yesterday?

Mr. HOLDEN. I heard the letter. I didn't know who had written the letter.

<sup>1</sup> Oscar R. Ewing, of counsel for Aluminum Co. of America.

<sup>2</sup> "Exhibit No. 56," appendix, p. 948.

The CHAIRMAN. Mr. Ewing wrote that letter.

Senator BREWSTER. Mr. Ewing quoted you very definitely as saying, or his statement is—

If Tennessee Valley Authority does not want to proceed with the construction of Fontana, then Mr. Holden, of Office of Production Management, is prepared to recommend that the project be built by the War Department, and leased to the Aluminum Co. or a subsidiary for the usual 5-year period, with an option on the part of lessee to purchase the plant.

That, you think, may be correct?

Mr. HOLDEN. Well, no; I think that Mr. Ewing misunderstood the fact that I was very interested in listening to any proposal that the Aluminum Co. wanted to make. I think he may have misunderstood that for a willingness to accept any proposal the Aluminum Co. wanted to make.

The CHAIRMAN. Did you have the same willingness to listen to proposals by other people who were willing to make aluminum?

Mr. HOLDEN. I think so.

Mr. FULTON. What other company did you discuss production with prior to May?

Mr. HOLDEN. I think the only two companies we have ever discussed production with were the Aluminum Co. and Reynolds.

Senator BREWSTER. I want to get this a little more definite. Mr. Ewing is writing this letter to the chairman of the Federal Power Commission, so I presume it is a matter of record there, under the date of February 21, 1941, and he is making a categorical statement. Mr. Ewing is a pretty careful and pretty experienced attorney, and your first statements rather implied that possibly it was correct, but you said, of course, you had no authority to settle it, which would imply that you may have said it but it didn't mean so much. I think it is important enough to be fairly definite, and I think you may perhaps ease your mind a little that if you did recommend it, you were simply doing what had been a rather general policy this last year by the O. P. M. in arrangements of this sort in connection with aircraft, and in certain other instances perhaps, so that it wouldn't be extraordinary; but what we want to know definitely is whether or not it was so.

Mr. HOLDEN. Senator, my mind is perfectly at ease on the point.

Senator BREWSTER. What do you mean by that?

Mr. HOLDEN. I am not responsible for what Mr. Ewing writes, and I can tell you only that Mr. Ewing may have misunderstood a willingness to listen to his proposals for an approval of those proposals.

Senator BREWSTER. Well—

Mr. HOLDEN. If I may go along a moment, the way we handle such proposals goes something like this: We listen to them, and after we have listened to them we take them up within the organization and discuss them, and before any recommendations are made (of course no commitment can be made to a company by anybody in O. P. M. without the approval of Mr. Knudsen) they are discussed thoroughly and have the approval of the organization right up the line.

Senator BREWSTER. Well, Mr. Ewing's statement is entirely consistent with all that. He simply states, categorically, that you said, "I have had conferences with representatives of R. F. C. and O. P. M.," which I take it is yourself and himself. Then he states that "Mr. Holden is prepared to recommend that the project be



built and leased, with an option to purchase"—"prepared to recommend." I think that in a matter of this importance, in a formal communication by Mr. Ewing at the time, which is under date of February 21, 1941, to the Chairman of the Federal Power Commission, I can hardly imagine Mr. Ewing would make that statement without thinking that it was correct. I know Mr. Ewing, and I know he is pretty careful.

Mr. HOLDEN. I have no doubt he wouldn't make the statement unless he thought it was correct. Mr. Ewing may be mistaken.

Senator BREWSTER. Now I want you to clarify that. Are you sure he was mistaken or are you just in doubt about it?

Mr. HOLDEN. I am sure I had no intention of making any such statement but it is quite possible Mr. Ewing might have deduced such an understanding from something I said.

Senator BREWSTER. You heard what Mr. Gibbons said yesterday regarding the situation from the standpoint of the Government in giving a 5-year option of purchase, did you not?

Mr. HOLDEN. No; I don't believe I did. Would you repeat that?

Senator BREWSTER. He was asked quite definitely whether or not under current conditions an option of acquisition at cost less depreciation after a period of 5 years might in the event of inflation be extremely advantageous to the lessee, and possibly prejudicial to the Government, and he agreed that was the case.<sup>1</sup> What do you say about that?

Mr. HOLDEN. I don't know that I have thought about that enough, but in the discussion that I had with Mr. Ewing, the question of the option was an option to T. V. A. and not the Aluminum Co. The T. V. A. was to have the option of acquiring the dam.

Senator BREWSTER. Not in his statement. His statement was that it was to be leased to the Aluminum Co. or subsidiary for the usual 5-year period with the option on the part of the lessee to purchase the plant. That is very definite.

Mr. HOLDEN. Well, it is very definite in his letter.

Senator BREWSTER. But you say that was never contemplated?

Mr. HOLDEN. It certainly was not my understanding. It is not at all my recollection of my conversation with Mr. Ewing.

Senator BREWSTER. You don't think at that time you were prepared to recommend any such thing?

Mr. HOLDEN. No, Senator; I was prepared to recommend anything that would have been satisfactory to T. V. A. that would have gotten us aluminum.

Senator BREWSTER. What would be your opinion today about such an arrangement if you were in position to consider and recommend?

Mr. HOLDEN. I would like to study any recommendation, Senator, before I gave you an opinion on it.

Mr. FULTON. That dam has been under consideration since last fall, or in fact since late last summer, hasn't it?

Mr. HOLDEN. The dam has been under consideration, yes; I think since late last summer.

Mr. FULTON. And aren't you prepared to make up your mind with respect to it now?

<sup>1</sup> Supra, pp. 808-809.

Mr. HOLDEN. No, Mr. Fulton; I am prepared to entertain any proposition that is going to get us more aluminum and which is satisfactory to T. V. A. Before I could say I was prepared to make such recommendation, I would want to discuss it both within the organization and with T. V. A.

Mr. FULTON. Then the difference between your position now and your position in February and April of this year is that you are prepared to entertain any proposition and consider it, whereas up until May you were not prepared to consider any proposition from anybody who did not propose to finance the reduction plant himself.

Mr. HOLDEN. Oh, I don't believe I would accept that statement.

Mr. FULTON. Did you ever make any such statement to anybody?

Mr. HOLDEN. What statement?

Mr. FULTON. Any statement to anybody that the O. P. M. would not consider any production plans which involved Government financing.

Mr. HOLDEN. No; I don't believe I ever said that.

Mr. FULTON. Did you ever make a statement that the O. P. M. would not consider any plans by anybody except the Aluminum Co.?

Mr. HOLDEN. Mr. Fulton, I don't believe that I ever said that the O. P. M. would not consider anything—would not consider anything.

Mr. FULTON. Did you ever have a conversation with a Mr. Gaudy with respect to that subject?

Mr. HOLDEN. Yes; I had several discussions with Mr. Gaudy.

Mr. FULTON. Did you ever tell Mr. Gaudy<sup>1</sup> the O. P. M. would not permit or would not consider the building of plants for the reduction of aluminum by anyone except the Aluminum Co.?

Mr. HOLDEN. I don't believe I ever said such a thing to Mr. Gaudy.

Mr. FULTON. And if he states that, you categorically state it is not so?

Mr. HOLDEN. Yes; I think I would. Yes; I think I would state it is not so.

Mr. FULTON. You mean you are sure of that?

Mr. HOLDEN. I think I would state it is not so.

Mr. FULTON. Because you have a recollection that you did not make any such statement?

Mr. HOLDEN. I have no recollection of ever having made such a statement.

Mr. FULTON. Did you make any notes of the conferences you had with Mr. Ewing and Mr. Gaudy?

Mr. HOLDEN. I have a record of the conference I had with Mr. Ewing, and I believe I have a record of the conference I had with Mr. Gaudy.

Mr. FULTON. And would those notes show what you told Mr. Ewing and what you told Mr. Gaudy?

Mr. HOLDEN. I think so. I don't recall the notes I made of my conversation with Mr. Gaudy but I do recall the notes I made of my conversation with Mr. Ewing and they were on the proposal that Mr. Ewing made.

<sup>1</sup> R. J. Gaudy, president, Standard Aluminum and Alloy, whose testimony appears, *infra*, p. 871 et seq.

QUESTION OF MR. HOLDEN'S OPINION AS TO ALUMINUM CO. OF AMERICA  
BEING ONLY "DEPENDABLE" PRODUCER OF ALUMINUM

Mr. FULTON. Do you know anything about a letter that was written but not sent back in February to the effect that the Reynolds people should not be given the Washington power, but that it should be transferred to the Aluminum Co.? Have you ever heard of such a letter?

Mr. HOLDEN. I don't recall such a letter to that effect.

Mr. FULTON. Do you recall a letter on that subject?

Mr. HOLDEN. I recall a letter on that subject.

Mr. FULTON. Would you tell me what you recall with respect to that letter?

Mr. HOLDEN. I wrote a letter that was not sent, to the effect that in the event that any decision was to be made on Bonneville power, that the power and the equipment for the manufacture of aluminum should be placed where we were sure we would get the aluminum.

The CHAIRMAN. In your opinion, that was the Aluminum Co. of America?

Mr. HOLDEN. Yes; I think the Aluminum Co. of America as the only producer of aluminum is the only place where we are sure that we can get aluminum.

Mr. FULTON. Did that letter specifically recommend in so many words that the power which was then being considered for the Reynolds Co. should be diverted from the Reynolds Co. to the Aluminum Co.?

Mr. HOLDEN. I don't recall whether it said that or not.

Senator BALL. Why do you believe the Aluminum Co. is the only company where you can be sure of getting aluminum?

Mr. HOLDEN. The Aluminum Co. is the only company which has produced aluminum in this country to date.

Senator BALL. But it is not a secret process; it is not terrifically difficult to do.

Mr. HOLDEN. I can't tell you whether it is a secret process or not. I have been told there is a considerable trick to getting aluminum cells to work.

Mr. FULTON. By whom were you told that?

Mr. HOLDEN. By the Aluminum Co.

Senator BALL. Isn't Reynolds producing now?

Mr. HOLDEN. I might say I was told that by the engineers of the Aluminum Co. on inspection tours where they had no interest in stating anything beside their work. I was never told that in Washington, I might add.

Mr. FULTON. And were you ever told that by any officials of European aluminum producing companies?

Mr. HOLDEN. No; I don't recall having any conversations with officials of European aluminum companies.

Mr. FULTON. Did you ever check it in any way by looking at the literature that has been written by various engineers and experts of the world on aluminum?

Mr. HOLDEN. No; I have never checked it.

Mr. FULTON. In other words, you accepted it for its face value.

Mr. HOLDEN. I accepted that at its face value; yes.



Mr. FULTON. This letter I referred to—will you correct me if I am wrong—said:

It is our understanding that this proposed additional “pot room”—referring to the Reynolds “pot room”—

will use 20,000 kilowatt-hours of power from Bonneville which we recommend should be made available to the Aluminum Co. of America for an increase in the capacity of its Vancouver plant. Reynolds Metals Co. has never produced aluminum, and while we are hopeful that it will not encounter any difficulties in this production, we feel that it involves considerable risk to rely on it for approximately 12 percent of the required annual production of aluminum. We also do not know if the Reynolds Metals Co. has the facilities to produce the additional alumina needed to supply this additional “pot room” or the means with which to increase its facilities. We therefore feel that there should be greater certainty that the maximum amount of aluminum would be produced from the available facilities if this additional power was made available to the Aluminum Co. of America rather than to Reynolds Metals Co.

Mr. HOLDEN. Yes; I wrote the letter. I still agree with that letter, Mr. Fulton.

Mr. FULTON. Well now, let's see, what study did you make of the facilities of the Reynolds Metals Co.?

Mr. HOLDEN. I made no study of the facilities of the Reynolds Metals Co. except a visit which I made to their plant which is now being constructed at Lister, which I made after that letter was written.

Mr. FULTON. And at the time the letter was written, you hadn't even visited the plant?

Mr. HOLDEN. That is right.

Mr. FULTON. And as a visitor to the plant—you are an economics professor who has worked with the Eastman Kodak Co.—could you tell me what studies you had made of aluminum?

Mr. HOLDEN. None.

Mr. FULTON. And will you tell me what experts on behalf of the O. P. M., who had no connection with the Aluminum Co., made any investigation on which you relied in preparing this letter?

Mr. HOLDEN. I think it would be difficult, Mr. Fulton, to find an expert on aluminum who had not had some connection with the Aluminum Co.

Mr. FULTON. Are you sure of that?

Mr. HOLDEN. I would like to point out that Mr. Reynolds is employing two former employees of the Aluminum Co. to run his Lister plant.

Mr. FULTON. Did you talk with either of them about this subject?

Mr. HOLDEN. I talked to both of them.

Mr. FULTON. And did they express the opinion that they did not have the facilities?

Mr. HOLDEN. No; they did not express that opinion. In fact, they were quite confident they would produce aluminum.

Mr. FULTON. And when you say there are no other experts, do you mean there are no other people in the world except the Aluminum Co. that know about the aluminum business?

Mr. HOLDEN. I wouldn't say that. For all I know there may be many people, but I don't happen to know them.

Mr. FULTON. For all you know there may be many people in the United States who have recently left Europe who have had aluminum-producing experience.

Mr. HOLDEN. That may be.

Mr. FULTON. And at least no effort was made to find that out from those people. Can you tell us why the letter was not sent?

Mr. HOLDEN. No; I could not tell you why the letter was not sent. I don't even know what draft of the letter you have. As I recall, the letter was redrafted two or three times.

Mr. FULTON. Well, do you know why these provisions with respect to this recommendation or transfer of power were not made?

Mr. HOLDEN. What was that again?

Mr. FULTON. Do you know why these provisions with respect to the recommendation of transfer of power were not contained in whatever letter ultimately was sent?

Mr. HOLDEN. As I recall, no letter on that was ultimately sent, and I think, now that you have mentioned that, that it was because the matter was decided in the meantime.

Mr. FULTON. Are you sure that there wasn't a letter sent on the same day that this other letter was dated which related to the same subject of the 20,000,000 pounds, but which did not contain a recommendation of that type, and instead inserted a statement:

We presume, of course, that you will satisfy yourself as to the ability of Reynolds Metals to complete the necessary construction to operate the increased facilities and to supply it with the necessary materials for manufacture.

Mr. HOLDEN. I don't recall having written that letter myself. Perhaps so.

Mr. FULTON. In other words, a letter was sent on the same subject and it did raise the same question.

Mr. HOLDEN. You have the letter, Mr. Fulton; I don't have the letter. If you have the letter, apparently it was sent.

Mr. FULTON. What I want to know is whether you have any information as to why that letter was drafted one way in the beginning and was changed before it was sent.

Mr. HOLDEN. I don't even know that it was sent.

Mr. FULTON. All right, then; why another letter on the same subject was substituted which, instead of making a recommendation of transfer, simply said to the R. F. C., "Satisfy yourself."

Mr. HOLDEN. I don't know that another letter was sent instead of that letter. In fact, I think that the letter you refer to was an interoffice memorandum.

Mr. FULTON. No. I didn't wish to introduce names, but the letters are both from the same person in the O. P. M. to the same person in the R. F. C., bear the same date and relate to the same subject, this 20,000 kilowatts of power and the 20,000,000 pounds.

Mr. HOLDEN. I have no recollection of the second letter.

Mr. FULTON. Did you have any discussion, or, so far as you know, did anyone have any discussion with the Aluminum Co. concerning that 20,000,000 pounds and the 20,000 kilowatts?

Mr. HOLDEN. Concerning the 20,000,000 pounds with the Aluminum Co.?

Mr. FULTON. That was to be produced by the 20,000 kilowatts. In other words, did the Aluminum Co. discuss with you a transfer of that power from the Reynolds Co. to the Aluminum Co.?

Mr. HOLDEN. No; I don't recall any discussion of that kind.

Mr. FULTON. Then this was an idea that originated in the O. P. M. as to a transfer without any discussion of it at all with——

Mr. HOLDEN (interposing). Mr. Fulton, that idea was one that originated with me, and I think that you will agree that the most important thing under this program is to get aluminum. To this time there has been only one company in this country that has ever manufactured aluminum, which has had the organization which knows the aluminum game from bauxite to the metal. If we want aluminum and if we want planes, we have got to get the aluminum where we are sure we are going to get it. I have confidence, since talking with the Reynolds engineers in Lister, that they are going to produce aluminum. I don't believe they have gotten into production yet, but I believe they will be successful. If they are successful in Lister, I would like to call your attention to the fact that the increased plant at Bonneville would more than double what they had originally planned, and for an organization which has never before produced aluminum to thin out, to double the capacity for something which it has not yet got into production, I thought was a rather risky business, and I still think it is a risky business.

Mr. FULTON. And on the basis of that you proposed a recommendation without yourself having so much as even consulted the Reynolds people to find out what their facilities were; is that right?

Mr. HOLDEN. I want to call your attention again to the fact that these recommendations clear through the organization, and before any decision on them is taken, those facts to which you refer would be determined.

Mr. FULTON. And yet the fact is true, is it not, that you made this recommendation knowing that you had no information at all at Reynolds Co.?

Mr. HOLDEN. I made the recommendation on the general grounds which I have just stated.

Mr. FULTON. And without any consideration whatever of the specific question of what facilities they had and whether they really could operate.

Mr. HOLDEN. I don't see that the facilities they had have very much to do with the general grounds I have just described.

Mr. FULTON. I know you don't, but I asked you whether you gave any consideration to the specific grounds at all.

Mr. HOLDEN. I did not.

Mr. FULTON. And was that the reason also why you were unwilling to consider the proposition of the Bohn Aluminum Co. in April when the shortage was known to exist?

Mr. HOLDEN. I can't accept your statement that I was unwilling to consider it.

Mr. FULTON. As I understood you, up until a few days ago you had no discussions with them as to the basis on which they intended to proceed, but you have since written them and requested them to submit information on what they had in mind.

Mr. HOLDEN. I think my answer to that question is already in the record.

Mr. FULTON. Isn't it true it is only in the last few days that you have even examined them for their plans?

Mr. HOLDEN. Yes; that is quite so.



Mr. FULTON. They had written you in April, I believe, stating that they invited consideration of their qualifications—

that they had acquired a source for primary aluminum and on several occasions during the past 20 years had studied plans to attain that end; that their investigations had included surveys of accessible raw materials, inspection of transportation facilities to locations where adequate electrical energy was available, and thorough laboratory research.

Now in this crisis to obtain aluminum, was not that offer on their part at least worthy of investigation?

Mr. HOLDEN. I tell you, I think it is worthy of investigation when it has been decided that we will have to finance this with Government funds, and we are so considering it.

Mr. FULTON. In other words, it is worthy of investigation in May but not in April?

Mr. HOLDEN. I have answered that question.

Mr. FULTON. Now, was there not in Switzerland a very successful producing aluminum concern?

Mr. HOLDEN. There may have been, I don't know.

Mr. FULTON. Do you know anything about an offer from the Switzerland people to come to this country and, with their own capital, complying even with this requirement, to build a plant?

Mr. HOLDEN. Yes, I remember that the Swiss people came over here, but I think that was before I came into the Metals Section.

Mr. FULTON. What has been done with respect to the Swiss?

Mr. HOLDEN. I say I think that was before I came into the metals section.

Mr. FULTON. Has any consideration been given to that since you did come to the metals section?

Mr. HOLDEN. No consideration has been given to it in my presence. I never attended any conferences with the Swiss people.

Mr. FULTON. And, so far as you know, is any consideration being given to it today?

Mr. HOLDEN. As far as I know, no consideration is being given to it now. I can't even tell you except second-hand that there was a proposal from the Swiss. That is just my impression.

Mr. FULTON. Well, perhaps I could refresh your recollection by showing you some papers with respect to it, found in the files of the O. P. M., if you have any doubt there at least was a proposal. Do you have any such doubt?

Mr. HOLDEN. I have no doubt. I say I don't know.

Mr. FULTON. I see. At any rate, they were not asked whether it would be possible to produce an organization in this country to proceed.

Mr. HOLDEN. I don't know.

Mr. FULTON. Would you investigate the Swiss proposal and furnish us with any information that you may have with respect to it, and to the manner and method in which it is being treated today?

Mr. HOLDEN. Yes; I would be glad to.<sup>1</sup>

Mr. FULTON. Senator Brewster was absent when you gave us your background. Would you tell him what you did before you came to O. P. M.?

<sup>1</sup> A memorandum regarding negotiations with the Swiss Aluminum Co. of Lausanne is included in the appendix on p. 987.

Mr. HOLDEN. Yes; certainly. Senator, I went to the Kodak Co. on September 1 in 1939, the day the Germans invaded Poland, and I was asked to come to the Defense Commission shortly after the fall of France in June. Before that I was teaching at Harvard University. Before that I was in public accounting.

Senator BREWSTER. Were you at the School of Business Administration?

Mr. HOLDEN. No; in the college; I was teaching economics.

Senator BREWSTER. Had you been in metals; had that been your field at all?

Mr. HOLDEN. No, sir; I knew nothing about aluminum-magnesium when I came here, except the information that one picks up in economic studies.

Senator BREWSTER. And you are still with the Office of Production Management?

Mr. HOLDEN. Yes, sir.

Senator BREWSTER. Did you sever your connection with Eastman Kodak when you came here?

Mr. HOLDEN. I didn't when I came here. I came here on leave from the Kodak Co., but I did resign in December.

Senator BREWSTER. December of 1940?

Mr. HOLDEN. 1940.

Senator BREWSTER. And your connection with the Eastman Kodak continued up to that time?

Mr. HOLDEN. I say I was on leave. I have been on the Government pay roll since I have been down here. I have not been an employee of the Kodak Co. since I have come to Washington.

#### SOURCES OF TECHNICAL KNOWLEDGE USED BY OFFICE OF PRODUCTION MANAGEMENT

Senator BALL. Do you have any chemical engineers in your metals sections?

Mr. HOLDEN. We have metallurgists in the metals sections, and I think we must have chemical engineers—yes, we do have chemical engineers because we have a chemical section.

Senator BALL. They are in the chemical section, though, not the metals?

Mr. HOLDEN. That is right.

Senator BALL. Are your metallurgists called into these conferences on the question of getting more aluminum production?

Mr. HOLDEN. Well, Senator, the question of getting more aluminum production is not one primarily of metallurgy; it is one mainly of estimates as to what we need and getting it with the facilities that are available. I think you will understand the fact that we came down here into a given situation, and that our job is to get supplies for the services, to advise them as to how to get supplies. The objective is to get the supplies, and we must take the situation as we find it. If we entered into metallurgical experiments preliminary to getting supplies, we wouldn't get very far.

Senator BALL. I am not thinking of that. I am thinking of your position that the Aluminum Co. is the only one that had been producing aluminum, and therefore they were the logical ones to go to.

You were simply taking the word of their engineers that it was a very difficult process and would be tough for any company that was new in the field to get into production speedily, and it seems to me that a good metallurgist or good chemical engineer would be a better judge of that particular angle.

Mr. HOLDEN. Senator, if I may say so, I think you are placing more emphasis on that point than I intended. I agree with you it is not a very important point. I think the important factor is this, that it takes a big organization to produce aluminum in the quantities in which we need aluminum. It takes an organization which is familiar with the routes of commerce, with the difficulties, not necessarily of a metallurgical character but of a technical character and a business character. It takes management, I suppose is the best way of stating it, and management organization is something which is built up slowly.

Senator BALL. But not necessarily management of producing aluminum.

Mr. HOLDEN. Perhaps not. That happens to be my view.

Senator BALL. Good management could handle the job of management, no matter what they were producing. What you were concerned about, it seems to me, was whether this was such a difficult technical process that there were only a few men who could handle it and they were all in the Aluminum Corporation. I was wondering if any effort was made to find out whether that was the case.

Mr. HOLDEN. That is part of it. There is no question that it is a process which requires a high grade of technical supervision, that is true. I don't know, I just say it looks to me as if it may require as high a grade of technical supervision down through the organization as it does at the top, and if that is true, on which I am not a judge, then the organization that is already functioning is important.

Senator BALL. Yes; but that is just the point I was making. If you didn't call in your metallurgists and your chemical engineers to find out whether that was the case—

Mr. HOLDEN (interposing). Senator, it isn't just the point of finding a metallurgist. It is a question of the organization, down through the ranks, the supervisory organization that exists. But again I say I don't want to put more emphasis on that point than it deserves. I think it is an important point but I think the whole organization that exists, with all its lines of communication and its knowledge of the industry, is the more important thing, is the most important thing, and I repeat that our job was to get aluminum.

Mr. FULTON. Have you made an investigation now through chemical men and metallurgists, or is one in course of being undertaken now?

Mr. HOLDEN. I think that question has to be answered in two ways. We have recently, I think some 3 or 4 weeks ago, recommended an appropriation for the Bureau of Mines, I think the amount was \$100,000, to set up pilot plants to investigate processes for extracting alumina from—

Mr. FULTON (interposing). With respect to this 400,000,000 pounds that they are now at least asking people to consider building plants to take care of, what investigation have you instituted other than this request for funds to be provided in future to ascertain



whether there are such chemical and metallurgical difficulties that you should consider only the Aluminum Co.?

Mr. HOLDEN. I would like to repeat, Mr. Fulton, that the question is not one primarily of getting a metallurgist. The problem is one of getting a going organization that can undertake this job, and I think I have already told you that we have planned conversations with the Bohn Aluminum Co. as a possible third company to get into production. Now, they have this organization. I would like to point out to you further that we have already recommended Bohn Aluminum Co. for fabrication in the aluminum-magnesium field for Government-financed facilities, as we have done in the case of a good many other companies.

Mr. FULTON. I am talking of ingot production, which is the point of the scarcity, as I understood it, that you have in mind for this future time.

Mr. HOLDEN. That is right.

Mr. FULTON. There is no question but that the country has a number of people who can fabricate aluminum and who would, at least if their plants could be expanded, be able to fabricate it without running into the argument that only the Aluminum Co. could do it.

Mr. HOLDEN. I think there is some question but it is not nearly as serious a one as ingot.

Mr. FULTON. Are there not in the United States a number of fabricators of aluminum who have had experience in that line for a number of years?

Mr. HOLDEN. There are fabricators of aluminum sheet but not many of them have had experience in high-strength sheet. Only the Aluminum Co. and Reynolds have been fabricating high-strength alloy sheet. There are some fabricators of extrusions. There are a good many fabricators of aluminum sand castings but even there the problem is a difficult one because under the present aircraft program the type of casting which is being turned out is more complicated, far more complicated, than most of the foundries have been accustomed to casting and we are faced with the problem of getting enough sand-casting capacity. Before we are through I think we will have to call on all the available facilities for that. It is a problem.

Mr. FULTON. With respect to those matters, has the O. P. M. any technical staff that is familiar with the fabricating of aluminum that it is relying on for its conclusions with respect to which company can produce what?

Mr. HOLDEN. The O. P. M. has no such staff.

Mr. FULTON. And where does it go for such information?

Mr. HOLDEN. To the production engineering and experimental engineering sections of the Army Air Corps.

Mr. FULTON. And to any other source?

Mr. HOLDEN. No. Let me qualify that. In special cases we have called in special consultants. In the case of aluminum forgings, we did call as special consultant a Mr. Emigh, who has had experience in Russia in erecting an aluminum sheet mill and was familiar with the general problem of fabricating aluminum. We sent him, together with Mr. Welty, an engineer with the Aluminum Co., to make an aluminum forging survey, with a view to getting as many

new facilities, as many people into this as could do the job. Mr. Emigh has since gone to Reynolds Metals Co. and is now, I understand, going to manage their new sheet mill, or at least be technical consultant on their new sheet mill at Lister.

That is the only case I recall at the moment where we have called in a special consultant. Ordinarily we depend upon the field staff of the production and engineering sections of the Air Corps.

Senator BALL. How big is that staff?

Mr. HOLDEN. I couldn't say, Senator, what its exact size is, but my understanding is that they have a good many field representatives. At any rate, they are able to get a job done fast. They can send people out from Wright Field to several companies at the same time and come in with reports on the facilities of those companies much faster than the O. P. M. could do it without setting up a big staff.

Mr. FULTON. Is that a statistical staff?

Mr. HOLDEN. No; it is an engineering staff.

Senator BALL. Is it staffed by Army engineers, or civilian engineers?

Mr. HOLDEN. As far as I know, Senator, it is Army engineers. They may have civilian engineers. I am not aware of that fact if they do.

Senator BALL. But I was thinking that O. P. M. might draw on M. I. T. and some of the technical schools for consultation on these production problems and find out just how technical these processes are and whether a firm that had the management experience, but perhaps not the technical experience in that particular field, could very easily hire a few graduate engineers or chemists and do the job, or whether it actually required that you stick to the firms that were in that field.

Mr. HOLDEN. That is so, Senator. I think the policy of O. P. M. has been to bring technical consultants in on a consulting basis, and to consult technical people rather than have them, at least in this case, in the organization, for obvious reasons. If we had gotten a technical man on high-strength alloys, in general he would have had to be a man from one of the companies, from the interested companies involved.

We have a technical committee. Some time ago O. P. M. made a recommendation to the National Academy of Sciences that a committee be established to advise us on these technical questions. This committee is called the technological committee of the National Academy. I think that the subcommittee on nonferrous metals is headed by Dr. Zay Jeffries.

Mr. FULTON. Where is he from?

Mr. HOLDEN. I couldn't tell you. I don't know. I am not familiar with the technical people in the industry.

Now, we have referred at least one question that I know of to this committee on a process for manufacturing aluminum from low-grade bauxite or alunite, I don't remember which it was.

Then in addition to calling on this technological committee, on all technical questions that come up with respect to minerals we refer to the Bureau of Mines for advice, and wherever we get

stumped, if we get stumped on any point of a technical character, we go to one of the two, or both.

Senator BALL. Did your committee ever give any consideration to the fact that you were tripling, multiplying four or five or six times the aluminum producing capacity of the country, and it might be a healthy thing if that could be spread out rather than concentrated in the monopoly that we have had heretofore in that field?

Mr. HOLDEN. I have personally given that much thought, Senator. But I think you will appreciate again that our main job here is to get aluminum. If we are going to build up separate organizations, that is one thing. If we are going to get aluminum, it appears to me it is another.

I hold no brief for monopoly. My training, I think, would indicate to you that I am fully aware of the public interest as a normal matter, but here we are concerned with getting a material which is vital, without which our aircraft program will simply fail, and I think you will agree with me, Senator, that we should not run any risk on that point.

Senator BALL. But it appears to me you didn't devote very much energy to obtaining expert technical advice as to whether it was really necessary in the interests of speed to keep this thing concentrated in the Aluminum Co.

#### QUESTION OF AMOUNT OF ORGANIZATION NECESSARY TO PRODUCE ALUMINUM

Mr. HOLDEN. Well, may I say again that I don't believe it was a question of having technical advice. I would like to emphasize again this point of organization, and I would like to say again that we came down here and had to take the business world as we found it. Our job is to get materials. If we try to rebuild the business world at the same time I am afraid we wouldn't get materials. Now, as to technical advice, I think you know there are a good many businessmen in the O. P. M., I can't commit any one of them, but I should think if you asked one of them, or all of them, you would find that building up an organization, big organization, is a pretty difficult thing.

Senator BALL. It wasn't a question of building one up. There were organizations, as this Bohn Co., in related fields that had their organization. It was simply a question of whether the production of aluminum was such a highly technical process that there would be serious delay in production.

Mr. HOLDEN. That is so, Senator.

Senator BALL. If an untrained organization went into it——

Mr. HOLDEN (interposing). And on that point may I say that one of the reasons why it is difficult to bring in new organizations, competent organizations, at this time is because most of the successful business organizations, with a staff big enough, capable enough of carrying out this job, are already pretty busy with national defense. Now, to take the Bohn Aluminum example. We have increased their capacity in magnesium and castings, I think, about 150 to 200 percent, and they are going to have to go much further.

Mr. FULTON. How big a fraction of their business would magnesium and sand blastings be?

Mr. HOLDEN. May I go on a moment?



Mr. FULTON. I had in mind magnesium sand blastings with a very limited fraction of their business.

Mr. HOLDEN. I don't know exactly what fraction of their business. May I go on with this point?

Mr. FULTON. With this 4,000-ton limitation it couldn't have been very huge, could it?

Mr. HOLDEN. What 4,000 ton?

Mr. FULTON. Limitation on magnesium in this country.

Mr. HOLDEN. I know of no such limitation.

Mr. FULTON. How many pounds of magnesium did we have?

Mr. HOLDEN. Mr. Fulton, we are now producing over 2,000,000 pounds of magnesium a month.

Mr. FULTON. And how many pounds of magnesium were produced in this country in 1939?

Mr. HOLDEN. If I may return to the point that I was making—

Mr. FULTON. I would like you to point out whether that 150 to 200 percent increase that you referred to related to a small or a large fraction of their business.

Mr. HOLDEN. I shall be glad to do that, after I answer the Senator's question. The Bohn Aluminum Co. is not only being expanded in magnesium sand castings, where its capacity is being strained and will continue to be strained to the limit, but they are also being expanded to produce bearings where they are very much needed, and I have been told on several occasions by officers of the company that they are hard put to it to find staff to carry out these assignments. I think that is typical of the capable companies in this field.

Now, if I may go back to your question, Mr. Fulton. The magnesium production which is now contemplated, which is now actually coming out of the plants, is at the rate of close to 26 or 27 million pounds a year. That is 13,000 tons rather than 4,000 tons.

Mr. FULTON. How much was it in 1939?

Mr. HOLDEN. I was not down here in '39.

Mr. FULTON. When you came here to become an expert on magnesium did you look at what they had in 1939?

Mr. HOLDEN. When I came here in September, Mr. Fulton, the production of magnesium was about 6,000 tons, somewhat over that. I think.

Mr. FULTON. That would be 12?

Mr. HOLDEN. Six thousand five hundred tons, at the rate of about 13,000,000 pounds a year.

Mr. FULTON. And now what is your knowledge of it as to the year before?

Mr. HOLDEN. What was that?

Mr. FULTON. And what was it the year before?

Mr. HOLDEN. Well, as I recall the productive capacity of Dow Chemical Co. up to the beginning of 1940 was just half that.

Mr. FULTON. In other words, 3,000 tons?

Mr. HOLDEN. Yes, about 7,000,000 pounds a year.

Mr. FULTON. Three thousand five hundred tons. Now was there any other producer?

Mr. HOLDEN. No, there was no other producer.

Mr. FULTON. So the 4,000 tons was an overstatement as to the amount?

Mr. HOLDEN. As to the amount available in 1939, I think that is right.

Mr. FULTON. Now with respect to this question of 100——

Mr. HOLDEN (interposing). I believe the Bohn Aluminum Co. is being asked to expand to fabricate the magnesium we have now and not the magnesium we had in '39.

Mr. FULTON. Now you gave me a figure of 150 to 200 percent expansion. What would be the figure for the Bohn Co. as a whole?

Mr. HOLDEN. I don't recall the figure for the Bohn Co. as a whole. You mean just in sand castings?

Mr. FULTON. No, the expansion.

Mr. HOLDEN. I have no figures on the expansion as a whole.

Mr. FULTON. And what part of its business would this sand casting represent?

Mr. HOLDEN. I have no figures on that.

Mr. FULTON. So that the figure of the percentage on part of the business, the importance of which we do not know, would not be very significant?

Mr. HOLDEN. I say I don't know.

Mr. FULTON. Now what investigation have you in the O. P. M. as to the organization that the Aluminum Co. has in the various plants that it is operating?

Mr. HOLDEN. I don't believe I understand that question.

Mr. FULTON. In other words, what investigation was made as to the nature and extent of the organization that the Aluminum Co. has had in the particular plants that it is operating?

Mr. HOLDEN. As I have said, Mr. Fulton, when we came to Washington we took the market situation and the company as we found it. The Aluminum Co. was the producer of aluminum; its products were apparently satisfactory to the aircraft industry and we continued to depend upon the producer of aluminum.

Mr. FULTON. But what I was struck by in your answers to Senator Ball was the great reliance you placed on the organization. Now what I wanted to know was what investigation did you make in order to find out what the organization was?

Mr. HOLDEN. Well, sir, I have told you already that I am not a technical man in these metals, but for your information I have visited several of the Aluminum Co.'s plants myself.

Mr. FULTON. And can you tell us, for example, how many men are needed to operate one of these pot plants to produce aluminum from alumina, and can you tell us the technical nature of their training and background that they have to have in order to operate it?

Mr. HOLDEN. No; I couldn't tell you that. I could guess at it but I repeat, Mr. Fulton, that you are placing more emphasis on that point than I place on the point.

Mr. FULTON. I am talking about the organization now that is necessary, and I thought you were saying that the thing not to emphasize was the question of technical manufacture. Now what I am talking about is what investigation did you make as to the organization, the point you emphasized, that would be necessary to operate such a plant. How many trained men do you need to operate such a plant? How many are they using? Are they finding it necessary to use men to operate the plants who had not previously had that same type of work,

or who had perhaps been in a junior capacity, foremen instead of superintendents, and the like. In other words, what investigation of this organization on which you place so much weight was made by the O. P. M.?

Mr. HOLDEN. I have talked on various occasions with the personnel director of the company on those points. I couldn't give you any figures on them. I can give you only the general impression that I have carried away from discussions with him. Those discussions arose not with respect to putting other companies into the field, but with respect to location of the Aluminum Co.'s own new plant facilities. I will give you one example. Sometime ago it became clear that we would have to have substantial new facilities for the fabrication of high-strength alloy sheet, which is used mainly in aircraft production. At the time we were debating—we were asked by the Aluminum Co. to advise with them as to where such plants should be located. There were various reasons why it would have been a good thing to locate it on the west coast. There are several large aircraft companies out there and the new ingot plants were going up at Bonneville. Now the plant was finally located at Alcoa, Tenn., not because it was the most economical location but because in the judgment of the people who were going to have to run the plant, the organization could be built up fastest by locating at Alcoa.

The Aluminum Co. already operates a high-strength sheet mill at Alcoa and it would have been possible—it was possible—for them to spread their supervision perhaps more easily there than it would have been at another location. Now it has been from that general type of conversation that I have gathered from them the number of people and the difficulties involved in building up organizations. But I would like to make it clear that my reasoning on this, if you are going back to the letter, is one on general principles, on general terms which are well known and accepted in business practice.

Mr. FULTON. I think that is quite clear. I have just one more question, and that is this. In connection with this 400,000,000-pound program that you have to institute now to get aluminum for the requirements as presently estimated, you have to obtain 400,000 kilowatts of power, and I assume that you are making studies with respect to where you are going to obtain it, with respect to what companies and under what conditions they are going to be allowed to build the plants. I would appreciate it if you would keep the committee familiar with the course of those negotiations so that it will have information with respect to them currently from now until such time as the actual contracts are let.

Mr. HOLDEN. I would be glad to do so, with the consent of O. P. M.

Mr. FULTON. We do not mean that you should consult us as to what you are doing, but simply that you keep us aware of the facts and if O. P. M. should determine not to do so, please inform us.

Mr. HOLDEN. On that point, I would be glad to, Mr. Fulton. I have been reminded of something I would like to mention. I think Mr. Reynolds testified yesterday morning that he would be interested in going into production of aluminum further, provided he could locate the new plants next to his old plants, in order not to strain his supervisory staff further than it would bear. I think that is a further illustration of the necessity for using existing organizations



as nuclei around which we build up capacity to get the material we need.

Mr. FULTON. Of course the O. P. M. will have to determine those factors and I think it might be better if instead of the general impression we substitute the specific knowledge as to what an organization is required and how to build one up and whether that is possible or impossible, rather than to proceed as we have today on the general impression that any industry that is expanding should be one that you would look only to the largest company in the field for.

SENATOR MEAD'S STATEMENT AS TO NECESSITY OF ENCOURAGING COMPETITIVE PRODUCTION OF ALUMINUM

Senator MEAD. Mr. Chairman, I think this is probably one of the most important chapters of our work. It is one that we will have to watch very carefully and perhaps return to frequently. It will, no doubt, receive considerable consideration in the post-emergency period, and I think that the committee ought to know, if it could be known, the attitude of the men in O. P. M. with reference to the encouragement of new industries in this field, or their encouragement of the former only existing company in this field. I think for Mr. Holden's defense we ought to know whether or not what he said here this morning, and what we have in the record, indicates that if he had his say he would discourage new enterprise, discourage competition; he would give all the business——

Mr. HOLDEN (interposing). I am not defending anything in these discussions; I have nothing to defend.

Senator MEAD. I am just taking from what I have heard you say and from the record that you were down here to get aluminum and therefore you give all the business to the Aluminum Co. of America. That is the way I took it and that is the way probably somebody will read it. Therefore, when the emergency is over we would have one monopoly that is bigger than it ever was before, and if they have any restrictive agreements or limitations upon production, we would still have to live with them, even though they injured national defense.

Now while you were stressing the importance of dealing only with the Aluminum Co. because we want aluminum, while you emphasize the fact that it was similar to revolutionizing the business world to even attempt to develop a new organization, we have the words of Mr. Reynolds and others that setting up an aluminum plant is like setting up a cement plant. He did it in 6 months and under more favorable circumstances it could be done in less time than that, and so what we want to know is this—and we are probably a little worried, based upon the record, based upon your statement that was even more favorable than that of Mr. Gibbons of the Aluminum Co.—you would defend, if I understand your statement, your recommendation that O. P. M. be prepared to recommend that the project be built by the War Department, leased to the Aluminum Co. for a period of 5 years, with an option that no matter whether we had inflation or not they would be allowed to buy that plant.

We asked Mr. Gibbons if he would defend a proposal of that kind, and he said he disavowed it.<sup>1</sup> He intimated that it was unfair to the

<sup>1</sup> Supra, p. 808 et seq.

Government, that it was more than the Aluminum Co. would ever expect to be reasonable from the Government, and so in view of the fact that you are supposed to have sponsored this unfair or unreasonable proposal, and that you encouraged only one company, and haven't aided in the setting up of a competing organization to help us in this great national-defense drive, what I am wondering about is your future attitude in this very important and responsible position that you hold.

Are you going to continue to discriminate against these competing companies, as they have assumed you have in the past from their testimony, I take it? Or are you going to lay less stress on the fact that it is revolutionizing the business world to experiment in that direction? Now I think for the record you ought to indicate that there are no ties, no fixed opinions, and that perhaps you made a mistake, as Mr. Gibbons said in his testimony that contract was a mistake, or that proposal was a mistake, an unreasonable proposal. I think you ought to probably tell the committee that you made a mistake in that attitude and that you probably put too much stress on the scientific requirements of setting up a competing enterprise, and that you will encourage, if it is in the interest of national defense, these new organizations in the future. I think you ought to say that for your own defense.

Mr. HOLDEN. Senator, you have asked a lot of questions. Would you mind asking them one, two, three, and I will answer them?

Senator MEAD. I didn't ask any questions; I just gave you some good advice. If you want to be asked some questions I will ask them in this line. You can, if you want to, read the record, including this part of the record I am commenting on, and Mr. Gibbons' statements of yesterday, and then answer in your own time in the record. Now, if you invite a few questions, let me ask you this question. You are with the Eastman Kodak Co.?

Mr. HOLDEN. I was.

Senator MEAD. You were. They are large users of aluminum?

Mr. HOLDEN. I understood Mr. Folsom to say last evening that they were small users of aluminum.

Senator MEAD. What would you say?

Mr. HOLDEN. I don't know; I say I was there only 10 months.

Senator MEAD. Would you happen to know anything about—of course, you would—whom they buy their aluminum from?

Mr. HOLDEN. As a matter of fact I don't, except I know they bought some from Doehler Die Casting Co. I happened to visit the Doehler die-casting plant; that is the reason I know.

Senator MEAD. And they in turn buy from the Aluminum Co. of America?

Mr. Holden. I couldn't say; they may buy from the Aluminum Co.; they may buy scrap.

Senator MEAD. Would you know whether or not the Eastman Kodak Co. have a large inventory of aluminum?

Mr. HOLDEN. I would not. Mr. Folsom testified on that point yesterday.

Senator MEAD. Well, would you want to say for the record that you intend to return to Eastman Kodak Co. after you complete your work here?

Mr. HOLDEN. I have already said for the record, Senator, that I resigned from the Eastman Kodak Co. in December.

Senator MEAD. And you didn't intend to return there at all?

Mr. HOLDEN. I have said only that I resigned in December; I have no idea what I am going to do when the emergency is over.

Senator MEAD. The committee is only concerned with your attitude in either discriminating against the possibilities of developing competing organizations, or encouraging them, if it is in the interest of national defense to do so, and we hope that remains their record of the past, which it occurs to us may be one that stressed a little bit too strongly the necessity of leaning too heavily on the Aluminum Co. and of not considering seriously enough the building up of competing enterprises. It occurs to us that in view of the record to date that you ought to, in the interest of national defense, give every one of these activities an opportunity to make their contribution. It is all right to defend the Aluminum Co. of America but we find these restrictive agreements with a strangle hold upon production here and it is high time that we consider a little competition.

Mr. HOLDEN. You have asked me, Senator, if I am going to stop discriminating. I haven't agreed that I have been discriminating.

Senator MEAD. I said apparent discrimination, and I base that statement upon the fact that Mr. Gibbons of the Aluminum Co. of America said that the offer you proposed was too unreasonable from the standpoint of the Government.

Mr. HOLDEN. I have not accepted the statement that you made, Senator.

Senator MEAD. In addition to that, Mr. Reynolds takes issue with you, in which he says that the setting up of an aluminum plant is like setting up a cement plant. You intimated that it would be a revolutionizing of the business world; he intimates it would be like setting up another cement plant.

Mr. HOLDEN. I have already put into the record the fact that Mr. Reynolds' own testimony shows that he wants to erect plants where he already has plants, in order to take advantage of existing organization. Now, you say, Senator—you have suggested, that I should stop defending the Aluminum Co., and I say I am not defending the Aluminum Co.; I have no intention of defending any monopoly; I am not interested in the defense of anybody; I have one interest, and that is to get aluminum, and I think that Mr. Batt testified here a couple of days ago that if it is necessary to rely on people with stripes to get aluminum, that we will rely on people with stripes. We have cooperated, we have gotten the cooperation of the Aluminum Co.; we have depended heavily on them in the past; we are depending on them now, and as far as I am concerned if we can get aluminum from the Aluminum Co. we will go on depending on them in the future, without any regard for the fact that they are a monopoly.

Senator MEAD. And I am very much afraid that your dependence along that line is a little bit too emphatic, and I think you would find if you depended a little bit upon competition, national defense would do immeasurably better. No matter whether we favor the Aluminum Co. as the only company to do business with, or whether we defend the developing of competition, I think under the circumstances that we should lend our encouragement to these competing organizations



because it will be beneficial both now to national defense and to the economy of our country afterward.

Mr. HOLDEN. Mr. Senator, I want to put into the record only that I think you have misrepresented my statements on Fontana.

Senator MEAD. That is perfectly all right; you might put that in the record, but the record, in my judgment, indicates that you lean too heavily on the Aluminum Co. of America, and that you lent little or no encouragement to the competing organizations.

The CHAIRMAN. I would suggest that you study the record after it comes off, and if you have any statement you desire to make, we will allow you to put it in the record.

Mr. HOLDEN. I will be glad to, Mr. Chairman.

The CHAIRMAN. That is all. Mr. Olds.

### TESTIMONY OF LELAND OLDS, CHAIRMAN, FEDERAL POWER COMMISSION, WASHINGTON, D. C.

The CHAIRMAN. You are Mr. Leland Olds, the Chairman of the Federal Power Commission, are you not?

Mr. OLDS. That is correct.

The CHAIRMAN. Mr. Olds, we are particularly interested in a letter written to you by Mr. Oscar Ewing on February 21, 1941.

Mr. OLDS. I have a copy here.

The CHAIRMAN. It is "Exhibit No. 56."<sup>1</sup> I would like for you to identify that communication.

Mr. OLDS. I identify it.

The CHAIRMAN. Will you tell us just what you understand the facts are in connection with that correspondence?

Mr. OLDS. Do you want me to give you considerable background, or do you want me to talk directly to the specific statements in that letter?

The CHAIRMAN. You may give the background.

### INTEREST OF FEDERAL POWER COMMISSION IN RELATIONSHIP BETWEEN POWER AND ALUMINUM

Mr. OLDS. First, I want to suggest that the Federal Power Commission, in approaching this problem, has been particularly interested in the relationship between power and aluminum, because in a sense when you are fighting with aluminum you are fighting with kilowatt-hours. We know that the Axis Powers have the capacity to produce something—probably over 1,000,000,000 pounds of aluminum a year, and we translate that into kilowatt-hours, 10 kilowatt-hours per pound, and it means that even to match them we have to find at least 10,000,000,000 kilowatt-hours a year for the specific purpose of producing aluminum.

The Commission is interested in that problem, antedating even the proposal of the Aluminum Co. of America, through its Nantahala Power Co., to construct the Fontana development. We were interested—

The CHAIRMAN (interposing). That was the Tennessee River development?

<sup>1</sup> Appendix, p. 948.

Mr. OLDS. The Fontana development is on the Little Tennessee River, a tributary of the Tennessee. Our interest had led us to the position where we wanted to encourage, so far as possible, any additional power that could be made available for aluminum. We are looking for it, not simply in the Tennessee Valley area and in the broader area in which the Aluminum Co., the Alcoa, plants operate, but also we are trying to find it in other parts of the country. We are dealing with requests to import more kilowatt-hours from Canada in order to expand aluminum production, and we are faced with the fact that the kind of power that is essential to the production of aluminum—firm power—is at a premium today.

It is very difficult, as we look over the entire situation, without projecting plans into the future, to meet this defense necessity of matching and overmatching the Axis Powers in the production of aluminum. We also, in our studies that led up to the results which produced this letter, knew of these sites on the Little Tennessee River and, in fact, prior to the time when the question of the Fontana development came before us, we had had previous declarations of intention to build by the Nantahala Power Co., the Aluminum Co. subsidiary, in connection with two projects further up in the basin of the Little Tennessee River, specifically the Glenville project and the Nantahala project.

When the Commission investigated those projects on the basis of the company's declaration of intention to build in accordance with the provisions of the Federal Power Act, to determine whether or not they would affect interstate or foreign commerce, the finding was that they would not appreciably do so. In other words, they were far up on the tributaries, and they didn't represent a sufficient possibility of altering the flow of the Little Tennessee River, and ultimately the Tennessee River itself, so as to be considered as coming within the scope of the intent of Congress, which required a license of projects in case interstate commerce would be affected.

Subsequent to our finding that these two projects would not appreciably affect interstate commerce, the Nantahala Power Co. went ahead as fast as possible with their development with a view to providing more power for the Alcoa aluminum plants. They then came before us with a declaration of intention involving the Fontana project, as it was known, and requested a similar finding.

#### EFFECT OF FEDERAL LICENSING REQUIREMENTS ON ALCOA'S PROJECTED FONTANA POWER DEVELOPMENT

Mr. OLDS. The Fontana project will be a reservoir project on the Little Tennessee River about 20 miles above the head of navigability, and will have a usable storage of over a million acre-feet. That makes it the second largest storage reservoir in the plans for the development of the Tennessee River Basin with Norris only exceeding it. Our engineers found, not only in terms of the magnitude of the storage involved, but also in terms of the proposed operation of the project, that the project in question—the Fontana project—would affect interstate commerce and, consequently, it meant that if the project were to proceed it would be necessary to obtain a Federal license.

I don't think I need to go into the details of subsequent requests from the Aluminum Co., except to say that the series of discussions

with representatives of their legal talent—referred to perhaps more specifically in this letter which I have just identified—indicated that the objection of the Aluminum Co. to taking a license for the Fontana project was based in the main on the provision of the law that if the Government should decide at the end of the license period, presumably 50 years, to recapture the project, a provision which affects all licensed projects, that the company would receive as compensation for its project only its net investment in the undertaking; that is, only its adjusted actual original cost.

In other words, it was clearly stated that the company felt that at the end of the license period the project might be worth considerably more than the net investment in the project. It wanted to get that unearned increment, or in some way to escape the necessity of meeting the requirement of the law, in case the Government 50 years from now decided to recapture the project, that it be restricted to receiving only its net investment. That was the main question that seemed to be at issue in the matter.

As this letter indicates, after giving extended consideration to the matter, the Aluminum Co., through its Nantahala Power Co., decided not to go ahead with the project, because it did not choose to request or accept a Federal license. Now, that, I think, is more important in terms of the Government's policy in dealing with this defense program than appears on the surface.

It is not the first instance in which the Aluminum Co. of America has refused to go ahead with a project which could produce power for the production of aluminum because a Federal license was required. In 1937 they made a similar declaration of intention, involving the Tuckertown project on the Yadkin River, and when the engineers of the Federal Power Commission found that that project would affect interstate commerce and therefore that a license would be required, they refused to go ahead with the development. Just to indicate the significance of this policy, which seems to be definite on the part of the company, here we have two important water powers, good water powers, for the production of aluminum, one of which, Tuckertown, is not built today and the other of which, Fontana, will not be built today, at least by the Aluminum Co., simply by the company's refusal to abide or act under the law which dates back to 1920.

That seems to us to fit in with the general policy of restricting production in the interest of maintaining monopoly. I think that the most interesting sidelight on the policy was embodied in their action in the Fontana case is found in their own brief in the case before the District Court for the Southern District of New York, involving the general question of monopoly.<sup>1</sup> One of the contentions of the Government in that case centered around the attitude of the company and its policy in the matter of water power, because water power is one of the two prime essentials of the production of aluminum. The Government was contending that their policy, as expressed in a tendency to squat on the water powers that were of the kind which could be used for the production of aluminum, and as indicated in their tendency to make contracts with power companies in the past restricting those power companies from selling

<sup>1</sup> See footnote 1, *supra*, p. 753.



power to anybody else for the production of aluminum—that this water-power policy indicated a determination to maintain monopoly, and the company replied, and I am quoting from their brief, page 102:

The necessity for a 50-year license from the Federal Power Commission before any dam may be built that affects a navigable river, the resulting power of the Commission over the amortization and depreciation of the property, and the ultimate power of the Federal Government to take over the development, are further reasons suggesting the inherent unlikelihood of anyone even attempting to monopolize the water power of the United States.

In other words, the company itself recognizes the Federal Power Act as an obstacle to monopoly resting on water power and then refuses to accept a license under the Federal Power Act.

Senator MEAD. Mr. Olds, right there you mentioned a moment ago that the Aluminum Co. turned down that proposal to develop Fontana because of this licensing of the Federal Government. I think you said that may have been the only question that caused them to reject the plan. I was wondering if they didn't have in mind the more attractive offer made to them by Mr. Holden, if this report is correct, and I read from a letter from the attorney of the Aluminum Co., which you have a copy of, which is here, in which it is said:

If the T. V. A. does not want to proceed with the construction of Fontana, then Mr. Holden, of O. P. M., is prepared to recommend that the project be built by the War Department and leased to the Aluminum Co. of America or a subsidiary for the usual 5-year period, with an option on the part of the lessee to purchase.

Now, of course, if this offer of Mr. Holden's, as indicated by the attorney for the Aluminum Co., was in competition with the licensing authority of your Commission, they would probably hedge a little bit on negotiations with you in an attempt to secure these more favorable terms, and I was wondering if they knew of this rather attractive offer at the time they were discussing the proposition with your Commission.

Mr. OLDS. They did not refer definitely to having received an offer, but in the discussions with us they definitely mentioned this as one of the alternative possibilities. In other words, the discussion ranged over a rather broad field when we were sitting down with the lawyers for the Aluminum Co., to see whether they would not go ahead under a license to build this project which we felt was essential to producing power for aluminum production in the defense program. One of the elements of the discussion, which perhaps preceded this that you suggested, involved the possibility that by means of the arrangement whereby they could depreciate the plant if they built it in 5 years, they would get savings in taxes. They thought at one time at least that the savings in taxes would be equivalent to about half the ultimate investment in the project.

I think there was definitely in their minds the various alternatives which would make it attractive to build this project as a part of the defense program.

Senator MEAD. And that, of course, if they did have an understanding or even an inkling or even a thought that there was an alternate plan that was more attractive, that would, of course, mitigate against any agreement with the Federal Power Commission on the more drastic provisions of the Federal licensing law?

Mr. OLDS. I think that is true.

Senator MEAD. You think that is true?

Mr. OLDS. I think I have about covered the background of this letter. Now, if you want me to go on and discuss the situation generally——

Mr. FULTON. I thought, Mr. Olds, you might tell us whether the Fontana site is one which the Aluminum Co. owns or one which is to be acquired.

Mr. OLDS. The Fontana site is owned by the Aluminum Co.; in fact, it has been held by the Aluminum Co. for 30 years. That, I think, is again one of the elements in the picture that has a bearing on this tendency of monopoly to restrict production.

Mr. FULTON. So that if they do not construct the water project on terms which they are willing to agree to, it simply will not be developed; is that correct?

Mr. OLDS. Unless satisfactory arrangements could be made for the project to be constructed as part of the T. V. A. program.

Mr. FULTON. But arrangements which would have to be consented to by the Aluminum Co.?

Mr. OLDS. That is correct. That is important, I think, that consideration be given to the possibility of developing it on the basis of satisfactory terms.

Mr. FULTON. Now with respect to that, at least, it is possible that the T. V. A. might develop it, but if it developed it the question would arise as to who would receive the power and under what conditions. Those, I assume, would have to be satisfactory to the Aluminum Co.?

#### NECESSITY OF DEVELOPING WATER-POWER PROJECTS TO MEET DEFENSE NEEDS

Mr. OLDS. Well, I personally come at the problem in a little different way. The Federal Power Commission, because of its responsibility in the field of power supply for defense purposes, has made very thorough studies of the relationship between the growing defense load and the capacity of the country in various areas to meet that load. We are convinced that there is no putting of an upper limit on the amount of production, and that means on the amount of power that may be necessary for a satisfactory defense program, a defense program which may extend not through just 1 year but may have to go on for a considerable number of years.

We feel that the whole tendency so far perhaps has been to plan too little and too late, and as power undertakings require today from 2 to 3 years to complete, that it would be very desirable to plan a considerable pool of power, a pool of power that would exceed what present estimates indicate as to the defense load which you can put your finger on, to meet a situation which is bound to arise and is almost on the horizon now, as a result of the possibility of a long and difficult war.

Mr. FULTON. That is why last summer you had concluded to try to get the horsepower sufficient to produce 1,000,000,000 pounds of aluminum on the theory that you ought at least to be able to match the then continental production, if you had to?

Mr. OLDS. Our conception of what would be needed has been steadily growing since last summer.

Mr. FULTON. But at least last summer you had in mind that there might be a necessity for providing up to that billion pounds?

Mr. OLDS. That is right.

Mr. FULTON. Despite the estimates that supply and demand would meet at a much lower figure. Now, we have been told that they now plan on a requirement of 1,400,000,000, which means that there would have to be, I take it, 400,000 kilowatts of power capacity made available, and I just wanted to know whether that would be an easy or a difficult task in view of the condition of the country as it is today.

Mr. OLDS. I think that would be a difficult task. We, in general, measure the needs for power for the aluminum program in terms of kilowatt-hours, rather than kilowatts, because a kilowatt may deliver up to 8,000 hours of use in a year, or it may only deliver 4,000 hours of use. The water powers of the country vary considerably.

Mr. FULTON. Measuring it in your way, would you tell us something of the problems you have in attempting to obtain so large an increase of cheap power for aluminum manufacture?

Mr. OLDS. I have a recent memorandum here, prepared in terms of the electric energy requirements of the Aluminum Co. of America to meet various levels of production. In 1939 the output of the Aluminum Co. of America was 327,000,000 pounds of aluminum, and that was produced with 3,253,000,000 kilowatt-hours. You have to judge the availability of power for aluminum not only in terms of your average water year in your streams but also in terms of the possible adverse water conditions. Now, down in the area where the Alcoa plants are located, down near the T. V. A., this has been a year of unusually adverse water conditions, which will tend materially, unless some other provision is made, to restrict the energy available for aluminum production.

For instance with the facilities in power contracts, as of September 1, 1939, the estimated annual energy available to the Aluminum Co. under adverse conditions was 2,692,000,000 kilowatt-hours, which would not have been adequate to produce the actual output in 1939.

Under average water conditions, however, their own capacity and their purchased capacity would have given them about 3,700,000,000 kilowatt-hours. Coming down to 1941, if we assume that an effort is going to be made in 1941 to get 525,000,000 pounds of aluminum, you have a situation where with the prospective completion—of the Glenville plant and other contracts, your average water conditions will give you 5,233,000,000 kilowatt-hours, or just about enough to produce that amount of aluminum.

However, taking these plants and contracts on the basis of an adverse water year, there is going to be only 3,876,000,000 kilowatt-hours, something of that sort, which will produce considerably less than that 525,000,000 pounds which I have just referred to. In other words, something like 1,374,000,000 kilowatt-hours has got to be found somewhere else. There is a situation down there in that area that I think is not completely understood. My recollection is that the plant capacity of the Aluminum Co. for the production of aluminum, if operated to full capacity, continuously, would require, before recent expansion, which I don't know is complete now or not, something like 260,000 kilowatt capacity. The Aluminum Co.'s own capacity varies very widely in terms of the availability of water.

I think there is something like 90,000 kilowatts of capacity that the company owns through its subsidiaries that is firm or dependable capacity. They were buying about 30,000 kilowatts of firm capacity



from T. V. A., which gave them something like 120,000 kilowatts as against the capacity of plants producing aluminum to absorb approximately 260,000 kilowatts. The balance was made up on capacity that was not firm, either by purchase of secondary capacity from T. V. A. or its own capacity, dependent on the availability of water; and that is what I am referring to when I refer to these variable figures.

If you look ahead to 1942, considering both the facilities owned and the power contracts, you would have available under average water conditions about 6,425,000,000 kilowatt-hours, which makes possible production of about 642,000,000 pounds of aluminum. However, if you get adverse water conditions you will have less than 5,000,000,000 kilowatt-hours available, and you will again be restricted at least as far as the Aluminum Co. with its contracts is concerned, to something like about half a billion pounds of aluminum, or something like considerably less than half of the production which is certainly necessary if we are going to meet the requirements of the defense program.

I don't know whether that gives you the answer to the question.

Senator MEAD. Mr. Olds, leaving the T. V. A. territory for the moment and coming up to the Great Lakes area, and without any reference to the St. Lawrence treaty, which, of course, can't aid us in this present emergency, what are the possibilities of securing additional power from Canada? Reference was made to it here yesterday. Has the Hydroelectric Commission of Ontario indicated that they have a surplus of power?

Mr. OLDS. No; they have no surplus in power. We have been studying that whole situation. I don't know whether all the details of the thing are ready to be brought out in public hearing, but we have been studying power potentialities of Canada and the power potentialities of the United States in that area, with a view to making sure that all those resources contribute their maximum to the most essential elements in the defense program. Now, that is involving an increasing interchange back and forth across the border. You probably know that up in northern New York there has been coming over something like 40,000 horsepower, my recollection is, in addition to their regular contracts, by which the Aluminum Co. was purchasing power from the Cedars development up near Montreal.

Similarly, you probably are aware of the fact that in the Buffalo-Niagara frontier region there has been a considerable amount of additional power; I think it is upward of 47,000 kilowatts coming over to meet the needs of the Union Carbon & Carbide, which is producing to a very greatly expanded extent in terms of defense contracts for both the United States and Great Britain. But the whole situation on both sides of the line is going to be exceedingly tight as far as the availability of additional power is concerned. It is going to take very careful planning to see that even the basic requirements are not interfered with.

Senator MEAD. And at the present time Canada has no surplus power that we can draw upon?

Mr. OLDS. No surplus firm power that we can count upon. There may be power at the period of the year when you are in one of the valleys of the load curve, but as your demand goes up in the autumn there is nothing that can be depended upon definitely; although there

may be arrangements that will give both sides the advantages of interchange.

Senator MEAD. Now, with reference to the diversion at Niagara Falls, and having in mind that this is an emergency period, what are the possibilities of further diversion and agreement upon further diversion at the present time between our Government and the Canadian Government?

Mr. OLDS. I don't want to overstep the bounds of our jurisdiction in relation to the other parts, but I think I can assure you of this, as I have assured people for a considerable while, that there are going to be no wheels that can produce power that won't operate because water is not available for them.

Senator MEAD. I received this telegram from the manager of the Chamber of Commerce at Buffalo, in reply to a telegram from me asking him for information on this particular subject. Here is what he says:

Replying to your telegram, from statements heretofore published in the press I understand the Niagara Falls Power Co. has plant and machinery already installed through which it can divert and use 12,500 cubic feet per second of Niagara River water in addition to the amount now authorized, and the company could produce about 110,000 kilowatts of additional power almost immediately, after authorization of additional diversion is granted.

Now if there is a possibility of the granting of that additional diversion of water, and if that matter is being held up, we will say, in the so-called or proposed St. Lawrence treaty—

Mr. OLDS (interposing). I can assure you it is not.

Senator MEAD. If it happened to be held up it wouldn't become a reality for 4 or 5 years, even though the treaty was adopted by both countries, but it occurs to me that if that diversion is there, and if that plant capacity is there—we know the need for it is apparent—it occurs to me that the Federal Power Commission and the similar authority in Canada, together with our State Department, ought to work night and day until it is consummated, and until this power is brought into use in the national-defense program.

Mr. OLDS. We are doing so.

Senator MEAD. You are? I am glad to hear that. I hope it becomes a reality very shortly.

Mr. OLDS. I am sure it will.

The CHAIRMAN. That is all, Mr. Olds. Thank you very much. Mr. Gaudy.

The CHAIRMAN. Do you solemnly swear that you will tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. GAUDY. I do.

#### TESTIMONY OF R. JARVIS GAUDY, PRESIDENT, STANDARD ALUMINUM & ALLOY CO.

The CHAIRMAN. You will give your full name and connection to the reporter, please.

Mr. GAUDY. R. Jarvis Gaudy—G-a-u-d-y.

Mr. FULTON. Mr. Gaudy, I understand you are the president of the Standard Aluminum Brass Corporation.

Mr. GAUDY. Standard Aluminum & Alloy Co.

STANDARD ALUMINUM & ALLOY CO.'S PLAN FOR MAKING ALUMINUM FROM  
LOW-GRADE BAUXITE WITH NATURAL GAS FOR POWER

Mr. FULTON. And that you have been considering at least the possibility of producing aluminum from low-grade bauxite, is that true?

Mr. GAUDY. I have been projecting that intention for 12 years.

Mr. FULTON. For 12 years?

Mr. GAUDY. Yes, sir.

Mr. FULTON. The committee has been informed that the high-grade bauxite is not to be found in this country in large quantities and that the supplies of it are only sufficient to take care of about 2 years under revised estimates now being considered so that low-grade bauxite is of importance. Could you tell us something of the nature of the process or the commercial practicability of the process that you have in mind?

Mr. GAUDY. The process for which I have licenses and am sponsoring is a development undertaken with the sponsorship of the French Government when they faced what I have felt we faced in this country, an exhaustion of high-alumina low-silica bauxite. I knew that such a shortage impended here which was inevitable. I therefore took licenses under the portfolio of United States Letters Patent—they were United States patents—and ran pilot-plant tests, and at this moment with the support of the Secretary of the Interior, the Bureau of Mines are now running commercial plant tests to determine the economy of using the run-of-mine bauxite of which there is in the Southern States an inexhaustible supply. In Arkansas where our intended construction program is planned, to which I have access, there are not less than 40,000,000 tons of high metal-bearing bauxite which is disqualified completely, because of its high silica content, for use in the Bayer process.

Mr. FULTON. Now, as to this process that you are considering, has that been used commercially anywhere abroad?

Mr. GAUDY. Unfortunately, it was appropriated immediately within hostile Germany and the access to that plant for observation, practical observation, is impossible.

Mr. FULTON. So you rely on pilot-test runs that you have made and on commercial-test runs that are now being made by the Bureau of Mines?

Mr. GAUDY. To project the economy of the use of the low-grade bauxite.

Mr. FULTON. Have you taken up the matter of producing aluminum through this process with the O. P. M.?

Mr. GAUDY. I have not specifically. I have repeatedly in documented delivery written setting forth the process, the intention, the availability and the projected program of utilizing gas as fuel for power generation in Arkansas, in which particular the low-grade bauxite, the necessary carbon available from gas, the power generated by gas fuel, would permit the entire integrated program of aluminum delivery from a very small area in Arkansas, to which gas can be brought where the bauxite is on the ground and the power can be generated with the arriving gas.

Mr. FULTON. Has the O. P. M. investigated your process?



Mr. GAUDY. Their continued interest undoubtedly induced the action on the part of the Secretary of the Interior who is also, I understand, a member of the Cabinet committee that is delegated to see what could be done about this aluminum situation. Their interest unquestionably was the inception of the tests which were authorized by Secretary Ickes, who with the support of the other members at least as far as the Secretary of the Navy, is having the Bureau of Mines undertake a commercial exploration of this and other processes which might be accessible for national-defense purposes.

Mr. FULTON. Do you know a man by the name of Holden in the O. P. M.?

Mr. GAUDY. Yes, indeed.

Mr. FULTON. Have you had any conversations with him with respect to this matter?

Mr. GAUDY. Only on two occasions have I met with Holden, and the second was the concluding expression of his attitude and discontinued any further interest on my part, at which time, 6 months ago, he indicated that if the problem—I can't quote verbatim—but if the problem of aluminum supply were brought to O. P. M., their interest in other sources than the Aluminum Co. of America was zero.

Senator MEAD. Was what?

Mr. GAUDY. Nil; there was no interest in other sources than the possible sources of the Aluminum Co. of America.

Senator MEAD. Mr. Holden said that?

Mr. GAUDY. Definitely.

Mr. FULTON. Will you tell us as nearly as you can the words that were used by you and by him?

Mr. GAUDY. Well, that was 6 months ago, and it is difficult. I brought up with him the probable interest in our projected plan domestically, the advantage of this integrated plan all within the United States with no imported ore, and he made, as nearly as I could give it verbatim, the statement that if the interest in any other source of aluminum supply, if an inquiry was made as to the interest in any other source of aluminum supply for defense purposes was made than the supply available from the Aluminum Co.—their answer, he didn't say his answer; their answer—would be, "No."

Senator MEAD. So he actually spoke for the entire O. P. M. organization.

Mr. GAUDY. Well, as an auditor, an applicant supplicant coming to them, I assumed he spoke with authority because he was the exponent of the aluminum portfolio of data as to requirements. I had met with Mr. Folsom before, who, by organization, was his superior; but I was inquiring about aluminum requirements. I would justly assume that. He said, "If they ask us, the answer is 'No.'"

Senator MEAD. And the amount of his interest was set at zero; is that it? Did he use the word "zero?"

Mr. GAUDY. He said their interest would be zero. You might qualify that by assuming that I was an applicant to construct a plant; obviously, at that time the Aluminum Co. were producing plenty of metal and had produced all that had been consumed except small imports in this country, and he might have justified his remark by saying that this warranted his interest. I would put that in parenthetically; that

wasn't what I heard. I might assume that. He said their interest was none.

May I continue on the process? Is it admissible?

The CHAIRMAN. Go ahead.

Mr. GAUDY. The Standard Aluminum and Alloy Co. was the first applicant after T. V. A. came in existence to meet with T. V. A. in the solicitation of a possibility of a block of power being reserved for the manufacture of aluminum. Continually from that time to date I have been in the position of proposing to become an independent producer of bulk aluminum metal, lacking still the financial support, not for the acquisition of any assets, licenses, or other valuable consideration in aluminum but simply for construction money. And at this time I am continuing the solicitation of that interest, but now, rather than applying for a block of T. V. A. power which was then more than available, I have undertaken to set up the use of natural gas in Arkansas, which field produces tremendous quantities, and pipe lines which can deliver adequate supply for power generation, for carbon, if needed for electrodes, and for process fuel, so that the integrated industry in Arkansas would be absolutely independent of the importation of high-grade bauxite. It would be independent of the imposition on the existing hydroelectric power programs for further diversion of their otherwise needed capacity for the sole purpose of making aluminum, and that diversion is now being considered and entertained here within the Government circles.

At the time the adequacy of the aluminum supply was so blandly admitted, in January, I delivered to Senator O'Mahoney<sup>1</sup> a report forecasting the shortage of metal at that time and predicting, without the recent expansion of the defense program, a definite shortage both of metal and power, which has overtaken us in a substantial way today, and I have the report that might be of value at least for filing, on the forecast made last January on the shortage of power and the shortage of aluminum with no realization that the defense requirements would be expanded by the tremendous programs, with our defense necessities developing since last January, and I would be privileged if I might put this in your files at least.

The CHAIRMAN. You may put that in the files, Mr. Gaudy, and we will have the counsel examine it and we may put it in the record later.

(The document referred to was marked "Exhibit No. 57" and is on file with the Committee.)

Mr. FULTON. To whom did you deliver that?

Mr. GAUDY. This report? I rather circularized it. I delivered it at the specific request—

Mr. FULTON. To the O. P. M.?

Mr. GAUDY. First to Senator O'Mahoney, who asked for it.

Mr. FULTON. And did you send a copy to the O. P. M.?

Mr. GAUDY. In January it was broadly circulated, as have been the repeated presentations as to the potentiality of our undertaking with domestic bauxite in meeting the requirements of the defense program

<sup>1</sup> Senator Joseph C. O'Mahoney (Wyoming), chairman of the Temporary National Economic Committee, pursuant to Pub. Res. No. 113, 75th Cong., authorizing and directing a select committee to make a full and complete study and investigation with respect to the concentration of economic power in, and financial control over, production and distribution of goods and services.

without intruding further on the rapidly exhausting hydroelectric power supply.

Senator MEAD. Would you agree with what Mr. Reynolds said yesterday about an apparent lack of interest in setting up a competing company such as his, as indicated in your visits and conversations with O. P. M. representatives?<sup>1</sup> Would you agree there was a lack of interest in developing competing organizations with the Aluminum Co. of America?

Mr. GAUDY. I think my close-out of interest on that is in the record as to the O. P. M. reaction toward my 12-year undertaking.

Senator MEAD. I don't know whether you heard Mr. Reynolds' testimony.

Mr. GAUDY. I did not. I came in just a few moments ago from the Bureau of Mines.

Senator MEAD. I thought probably you had.

Mr. GAUDY. I am sorry. Had I had the chance to look at the record—

Senator MEAD. From what he said he was not encouraged at all by the O. P. M. and he had to make a desperate effort to get started in the aluminum field, and I was just wondering if you agreed, insofar as your experience concurred with what he said.

Mr. GAUDY. I think nothing could be more dramatic than my continuous effort for 12 years not having borne fruit yet.

Senator MEAD. And you received no encouragement from O. P. M.?

Mr. GAUDY. Definitely none.

The CHAIRMAN. That is all, Mr. Gaudy. Thank you very much.

The committee will recess until Tuesday at 10:30 unless it is necessary to call a special meeting Monday.

(Whereupon, at 1:10 p. m., the committee adjourned until Tuesday, May 20, 1941, at 10:30 a. m.)<sup>2</sup>

<sup>1</sup> Mr. Reynolds' testimony appears supra, pp. 749-764.

<sup>2</sup> Hearings on Tuesday, May 20, and Wednesday, May 21, 1941, were held at Jacksonville, Fla., on the subject of construction at Camp Blanding, and appear in Part 4.





# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

---

MONDAY, JUNE 16, 1941

UNITED STATES SENATE,  
SPECIAL COMMITTEE INVESTIGATING  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:35 a. m., pursuant to adjournment on Thursday, June 12, 1941, in room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), James M. Mead, Ralph O. Brewster, Joseph H. Ball, and Tom Connally.

Present also: Hugh A. Fulton, Chief Counsel; and Charles P. Clark, Associate Chief Counsel.

The CHAIRMAN. Secretary Ickes, do you solemnly swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

## TESTIMONY OF HON. HAROLD L. ICKES, SECRETARY OF THE INTERIOR

Secretary ICKES. I do.

The CHAIRMAN. Mr. Secretary, since the other members are not here, and since you are in a hurry, if you care to, you may go ahead. Secretary ICKES. I will give them a full 20 minutes.

The CHAIRMAN. All right, we will wait for them.

We will proceed, now, Mr. Secretary. Would you mind giving the reporter your full name and connections?

Secretary ICKES. Harold L. Ickes, Secretary of the Interior.

## NEED FOR AMPLE SUPPLY OF WATER POWER FOR PRODUCTION OF ALUMINUM

Secretary ICKES. Mr. Chairman, it has recently become almost commonplace to point out that the Nation's needs for war materials are still being underestimated. Mr. Batt, of the Office of Production Management, in his testimony before you, reiterated that "our sights are too low." The O. P. M.'s Director of Research and Statistics, Mr. Stacy May, has come to the conclusion that an all-out defense effort means spending on defense as large a proportion of our material income as the British and Germans are doing, which is approximately 40 percent. For us this would mean an expenditure of 33 billions this year instead of 17 billions, and about 40 billions next year instead of 23 billions, figuring the national income at 82 billions this year and at 100 billions next year. Others, including Mr. Nelson, have pointed out that we must abandon old estimates for new ones.

Probably the one notable exception to this trend was the statement made by the electric power adviser of the O. P. M. at a conference in Buffalo only this month. The impression one received from Mr. Kellogg's remarks on this occasion was that we faced no problem with respect to power supply. His statement was promptly repudiated by the O. P. M.

On the same morning that Mr. Kellogg was making his speech in Buffalo, other representatives of the O. P. M. were engaged in a conference with officials of the Department of the Interior and the Tennessee Valley Authority in an effort to find a solution to the problem of providing sufficient electric power to meet the new estimates of aluminum capacity needed for the national defense. At this conference on June 3 an immediate program for the expansion of aluminum and magnesium capacity requiring more than 1,000,000 kilowatts of electric power was discussed, and the power agencies were asked to formulate a program for making this additional power available.

Following this conference, the Division of Power of the Interior Department supplied to the Office of Production Management tabulations made by its engineers and those of the T. V. A., showing when and where power could be made available in the West and South in amounts sufficient to make feasible the location of electro-metallurgical defense industries. The tables were based on existing and contemplated hydroelectric developments and upon steam plants that would be useful in connection with those developments both in the defense emergency and afterward.

Last Thursday the Federal Power Commission issued a voluminous report on electric power requirements and supply in the United States. Its conclusions were that "unless orders are placed immediately for large amounts of additional capacity for 1943, serious shortages will develop in that year and in subsequent years, if the emergency continues." The program outlined in our suggestions to the Office of Production Management would provide about 2,500,000 kilowatts of additional power during 1943. It is my intention to press for action along these lines. I am no advocate of power plants for their own sake. I do, however, believe that we should leave no stone unturned for the sake of a really adequate defense effort. What must be done can be done.

We must not fall behind in providing additional power as we have in aluminum. While it appears that our aluminum and magnesium requirements are now being estimated on a more realistic basis, this has not always been so.

I have been interested in aluminum development for some time, both as a member of an informal committee of the Cabinet on aluminum and magnesium and as the officer responsible for much of the national water-power development. Since the beginning of the defense program, I have constantly fought for increases in our plans for aluminum and magnesium production. The failure of the Defense Commission and of the O. P. M. to admit this necessity held up some of the necessary development by approximately 1 year. On July 15, 1940, O. P. M. officials told Senator McNary and a delegation of Northwest congressional representatives that the Aluminum Co. of America would have ample capacity to take care of the aluminum airplane requirements through 1942. At that



time Alcoa's capacity was 375,000,000 pounds per year with a slight increase in sight. The 1942 requirements for military uses alone are now put at 1,600,000,000 pounds with nothing allowed for civilian requirements. I believe these estimates will have to be increased again shortly.

About a month after this assurance, Assistant Attorney General Arnold was arguing before the court that the long existence of a monopoly in the aluminum industry had kept down the capacity to produce this metal. This view was later also expressed by Senator O'Mahoney after studies by the T. N. E. C. In rebuttal, Mr. I. W. Wilson, the production vice president of Alcoa, testified in the trial that Alcoa was in a position to supply the United States Government "with all the aluminum it will require for national defense within the next year." He further insisted that there would be a substantial surplus for the British. He also testified that Alcoa would be able to supply the needs for 1942 as well as for 1941, and that if requirements should increase after 1942 Alcoa would be able to expand relatively simply and easily to take care of such requirements. He added, on cross-examination, that this was over and above civilian requirements.

Alcoa was not disinterested in this matter. It sought to put off the horrible day when the monopoly would have to experience some competition. On November 28, 1940, the famous press release was issued to the effect that sufficient capacity was available to meet all defense requirements and provide some increase for civilian requirements. There is evidence before your committee that Alcoa helped the O. P. M. to estimate what these requirements would be. Again, when in December, 1940, one of the smaller California aircraft companies indicated that it had to shut down because of a shortage of aluminum, O. P. M. issued certain statements to the effect that there was sufficient aluminum capacity. That was 6 months ago, just about the number of months it would have taken to build an aluminum plant to meet the undoubted shortage.

Early this year some of the reasons for the long delay and the possible responsibility of the monopolistic Alcoa for it were discussed by the informal Cabinet committee on aluminum. On February 11, I suggested to the committee: first, that the O. P. M. be asked to estimate a top figure of aluminum capacity needs by months for the next three or four years; secondly, that all competitive processes should be examined at once on a commercial pilot plant basis; thirdly, that competitive production of magnesium, as well as the use of this metal by fabricators, should be encouraged; fourthly, that the Government should curb the profits of Alcoa, either by building Government-owned plants or by the purchase of Alcoa's output on a cost-plus basis.

On February 4, in reply to a request from O. P. M. for an additional 65,000 kilowatts of Bonneville power for Alcoa, on top of 162,500 already contracted for, I pointed out that this would amount to four-fifths of Bonneville's then installed capacity, and that therefore the request ran counter to basic policies set up in the Bonneville Act. I said that defense needs would govern my actions, and I also brought up the possibility of allocating this power to competitors of Alcoa. The possibility of magnesium development, for magnesium

is itself a competitor of aluminum, was suggested. The Bonneville Power Administration thereafter entered into power contracts with the Reynolds Metals Co., equal to that requested for Alcoa, for the production of aluminum.

In March, when we complied with a request by O. P. M. officials that we give Alcoa another 20,000 kilowatts for operating its pots at Vancouver beyond their normally rated capacity, we were told that this would be enough power in that area for Alcoa.

A month later we were again asked to allot 65,000 kilowatts of additional power for the Aluminum Co. of America. This was to be included in a program of 200,000,000 pounds additional. At this time it was obvious that the plans provided for an amount far short of what would be needed, and I replied that we would insist that new requirements be met by plants built by the Government. It was evident that unless this were done we would continue to be at the mercy of the Aluminum Co.'s apparent purpose to continue expansion on a piecemeal basis.

In May of this year the O. P. M. finally raised its sights to 1,600,000,000 pounds, which I am sure will be raised to two billions within another few months.

The CHAIRMAN. You feel that they are still underestimating these estimates?

Secretary ICKES. Yes; I do.

The CHAIRMAN. I think so, too.

Secretary ICKES. It seems to be a habit.

The CHAIRMAN. No doubt of that.

Secretary ICKES. Yet on May 14 the senior vice president of Alcoa told your committee that there was plenty of aluminum for national defense on the day he was testifying. That is a statement which was as incorrect then as it is incorrect to date. Personally I think that this statement betrays either incompetence or self-interest, both of which are dangerous to our program of national defense.

The Government is assuming almost all of the risk inherent in our rapidly expanding aluminum production. It is guaranteeing the market. It will take everything that anybody can produce. It is putting up, at its own expense, huge generating facilities which it will have on its hands at the end of the emergency unless the Nation continues to expand, as I, apparently unlike the Aluminum Co., hope that it will. The Government is putting up the money for the aluminum-reduction plants. It is also paying the management for operating them. It could hardly do more. In the Bonneville-Grand Coulee service area the Department of the Interior expects to have generating and transmission facilities costing some \$70,000,000 devoted to the production of aluminum by the end of 1942. That will make possible approximately 350,000,000 pounds of aluminum per year in that one area alone.

There is an obligation on the part of the Government not to take a fool's risk with the people's money. I do not believe that we should invest all of this money for national-defense purposes and end up either by treating the Northwest as a colony or by making a Christmas present of all of our expensive facilities to the Aluminum Co.

I have discussed these matters with the various Government officials who will be responsible for arranging leases for the Government-

owned plants. I have taken the position that in the matter of price policy the Nation has a great interest in aluminum. I am told that ingot aluminum has cost less than 10 cents per pound to produce at times when it sold for even more than the present price of 17 cents. Its price has been manipulated up and down in the past by the monopoly for its own purposes. This great differential between cost and sales price is a heavy expense to us. If the price of aluminum were reduced even 2 cents a pound, which would still allow the enormous profit of 5 cents a pound, we would save \$32,000,000 annually, based on the present estimates of demand. Moreover, as a result of the high-price policy, aluminum has not come into the general industrial use that it should and if the price stays high it will not come into such general use. It is to the interest of the Nation to have low-cost aluminum that will assure the continued use of cheap electric power and the operation of fabricating plants.

A second factor to which I have called attention is the necessity for the immediate training of adequate personnel to manage all of the new plants that are being built or contemplated. Unless this is done, the Government is without any real assurance that the defense plants will be run efficiently or that we will be able to expand even further, as will be necessary without any doubt. In our power contracts we insist, of course, that the companies begin building so as to be ready by the time that the power is produced. It would seem essential that the companies which are to manage the reduction plants guarantee also that tried personnel will be available at that time.

It should be pointed out that, although it is both desirable and necessary that aluminum reduction plants be located in the Northwest near available sources of public power, this location would place a heavy burden upon the Nation unless fabricating plants were also located in that region. At the present time, alumina produced from bauxite is shipped from Mobile and East St. Louis to the Northwest; it is there reduced to pig aluminum; the pig aluminum is then transported to fabricating plants in the East; the fabricated metal is then sent back in huge quantities to the Pacific coast—and even to the Northwest itself—for airplane manufacture. This shuttle system is obviously expensive. More important, it adds a terrific burden to our critically overlaid transportation system. The wastefulness tolerated in peacetime cannot now be afforded either in the conduct of business or of private affairs.

We must economize, and economy is nowhere more necessary or more greatly possible than in the use of our transportation facilities. While we are proceeding to carry out a program to increase our available transportation facilities, a course of action which I recommended more than a year ago, but which defense officials then deemed unnecessary, we must also take vigorous action to avoid the necessity of taking metals and materials on joy rides back and forth across the country.

I understand that additional fabricating plants for aluminum are needed and it seems to me essential that prompt action be taken to locate sufficient of these plants in the Northwest to process the ingots produced in that region, thereby avoiding these long cross hauls.

A concentration of aluminum-manufacturing plants in the Northwest would be disastrous for that region unless there is assurance that the aluminum companies will not consider themselves as transient aliens but will plan to stay in that area and locate fabricating plants there.



Reduction plants use few men, and add little to community wealth. Fabricating plants use more men, and would become part of that growing region. For the aluminum companies to use the cheap power now available there and then close down and move out would be denying to the Northwest the great opportunities it now has to secure other diversified defense industries, which would use the power advantageously now, and which, because of their use of native raw materials, would also build up the community by staying there. I know that the people of the Northwest are eager to help in the national-defense effort, but I am sure that neither they nor the Congress would care to see this region receive least-favored-nation treatment. This is not to ask that the Northwest be relieved of all risk, as the aluminum companies are being relieved of it, but only that it not be called upon to take all of the losses.

Finally, I do not think it desirable that we, however, unwillingly, should create a situation which would be a further aid to monopoly. As I have pointed out to the Office of Production Management, the power produced by the public money invested in Bonneville was expressly restricted by the Congress to prevent a monopolization of its use. Monopoly may be even more dangerous in dangerous times than it is in normal times. Our whole defense effort becomes dependent upon the skill, resourcefulness, and devotion to the public welfare of a few individuals who own and control the monopoly. These have not been subjected to the spur of competition. Their whole effort has been, not to improve their skills, but to retain and protect the processes which are the key to their industrial control. Further, these few individuals may operate on the theory that their primary duty is as trustees for their stockholders. They may believe that there is a basic conflict between the supposed interests of these stockholders in limiting facilities and production, thus keeping up prices, and the interest of the Government in increasing production.

We will have lost a great deal of ground if our present plans are so devised that the reduction plants that the Government is now building can be bought by only one big and wealthy company. In such an event it may buy them up at junk prices that will result in heavy losses to the Government. It may even do this for the purpose of closing them down, thus keeping them out of competition. Throughout its existence, the Aluminum Co. of America has bought out or hampered by all means in its power, every formidable competitor that ever threatened it.

If the aluminum plants, established and approved by the Office of Production Management and the Defense Plant Corporation, are few, and so of gigantic size, it will be impossible for average men or corporations either to stay in or go into the aluminum business at the end of the emergency. I would regret to see any such policy established by the Defense Plant Corporation; I would be apprehensive of the results of such a policy. Large units might well mean the end of the development of the light-metal industry in the Northwest. On the other hand, smaller plants would certainly be a great stimulation to it, if they were competitively employed after the emergency.

At several conferences held regarding the problem of securing the additional aluminum capacity necessary to the defense program, it was pointed out that one of the more serious delays would be caused by the

difficulty of securing equipment for the plants. It was suggested that the Defense Plant Corporation should immediately order such of this equipment as is standard and would be necessary in any aluminum enterprise, no matter who operated it or where. I hope that this suggestion is being followed. The same procedure should be adopted with respect to the additional power generators that will be required in connection with this and similar programs.

You may be interested to learn that I have instructed the Bureau of Mines to study raw materials other than bauxite and other processes for making aluminum, with particular emphasis on the use of domestic raw materials. One of these has already been thoroughly investigated by the Bureau, which has reported that it is economically feasible to make aluminum out of it. I refer to alunite, which is found in the States of Utah and Washington. I am told that the process to make aluminum out of alunite will also be available to make it out of aluminous clays. I have urged that a full-sized commercial operation of this process be financed by the Government. This matter is still pending at O. P. M.

The CHAIRMAN. How long has that been pending at O. P. M.? Do you know?

Secretary ICKES. I would say 2 or 3 months.

Mr. GOLDSCHMIDT.<sup>1</sup> The report of the Bureau of Mines was sent 6 weeks ago.

The CHAIRMAN. It takes them forever to arrive at a decision.

Secretary ICKES. Well, we haven't had any notice that they have arrived at a decision.

The CHAIRMAN. You will be lucky if you get that decision out of them inside of a year.

Secretary ICKES. At some later time I should like to discuss the development, in the defense program, of the whole area west of the Mississippi. I believe that it has been somewhat neglected, not by intent of the responsible agencies, not exactly by oversight, but by the policy of allowing existing companies to concentrate in the East if they so desire. I have heard that, instead of moving plants out West, some eastern companies have bought up heavy machinery in the Middle West and shipped it East. This comes close to looting that part of the country of its sources of possible wealth, instead of calling upon it for the share of defense work that would naturally go to it. More important still, if serious curtailments of our imports of materials from overseas should occur, the rapid mineral and industrial development of the West would become a matter of life and death to us. We would find that the battle of the West was as important to us as the battle of the Atlantic.

Our best information is that for some time Germany has been actively moving not only great factories but whole towns. The Nazis have learned that a wider dissemination of vital sources of war materials minimizes the danger of bombing attacks from the air. It would be heartening if we could anticipate the future in this regard and thus avoid a possible necessary decentralization of our industrial plants later when it may have to be done under abnormal conditions at tremendous expense.

<sup>1</sup> Mr. Arthur Goldschmidt, special assistant to the chairman of the Power Policy Committee, Office of the Secretary of the Interior.

The CHAIRMAN. Mr. Secretary, you are familiar with this Fontana set-up, are you not, of the Aluminum Co. in North Carolina?

Secretary ICKES. Well, I know about it in a general way. I am not familiar with it.

The CHAIRMAN. I thought maybe you might have some suggestions to make on that subject. They have been holding that thing up a year now simply because the Aluminum Co. does not want to get a permit from the Federal Power Commission that will give the Government the right to recapture.

Secretary ICKES. I have a profound conviction that the Aluminum Co. of America would prevent the necessary expansion of our aluminum manufacturing facilities, regardless of the cost to the country or the world, in order to get them all within its own domination and control.

The CHAIRMAN. I have a letter here from James C. Ingebretson of the Los Angeles Chamber of Commerce, in which he says that all the power facilities of Boulder Dam are not yet used to their capacity. Can you give us any information on that?

Secretary ICKES. That is true. We are willing to make that power available. I think I have the figures on it here. Boulder Dam can supply 60,000 kilowatts immediately, another 60,000 in 6 months. The Bullshead Dam, included in the appropriation for this year for the Bureau of Reclamation, will have an installed capacity of 180,000 kilowatts by June 1944.

The CHAIRMAN. The O. P. M. has informed us that they haven't been able to make any progress on these needed additional 1,000,000 kilowatts of power. Apparently they haven't made much effort to get power if that power is available at Boulder Dam. Are there any other places where power is available?

Secretary ICKES. Exactly 2 months ago I received a letter from O. P. M. which indicated to me that O. P. M. was ready to discuss contracts for power to make aluminum. Since then, nothing. I replied almost immediately.

The CHAIRMAN. We certainly need aluminum, and I don't think there should be any further delay. If we have power available, it ought to be put to work immediately.

Secretary ICKES. We not only have some power available, but by the time they could build these plants, we would have very large additional power available at Grand Coulee, where the biggest generator in the world would begin to turn in power there—the first in August, and then in September, and a third unit in March. These are 108,000-kilowatt generators.

The CHAIRMAN. You know, we have a rising curve of demand for aluminum for airplanes, and if we can't meet that rising curve by an increased production of aluminum, we are going to come to a point where we can't even make planes, let alone furnish any aluminum for private use.

Secretary ICKES. Well, when the story of this war comes to be written, it may have to be written that it was lost because of the recalcitrance of the Aluminum Co. of America. It is just as serious as that, and they are just as helpful and cooperative as that, too.

The CHAIRMAN. We have found them that way.

Have you any questions, Senator Ball?



Senator BALL. Mr. Secretary, you said that you are planning for 2½ million additional kilowatts of power in 1943.

Secretary ICKES. No; I think we said that would be the estimated need for 1943. We will produce of that how much?

Mr. GOLDSCHMIDT. That is our plan, Mr. Secretary.

Secretary ICKES. By January 1943, Senator, in answer to your question, we foresee an increase in capacity of the public plants of 902,600 kilowatts, but by going ahead now with some other developments that could become a total of 2,139,600. That would be additional developments in the Northwest, the Southwest, the Rocky Mountains, the Tennessee Valley, and Arkansas.

Senator BALL. Well, that 902,000, then, is simply what is provided for in the pending appropriation bill for appropriations already made?

Secretary ICKES. Yes; that is all in.

Senator BALL. The additional 1,300,000 would have to be additional appropriations to expand these other projects?

Secretary ICKES. That is right.

Senator BALL. How much is there of this alunite that you mentioned in Utah and Washington? What are the reserves of that?

Secretary ICKES. Enough to keep a 60,000,000-pound plant running for over 10 years. That is in Utah. We don't know how much there is in Washington.

Senator BALL. Is that the principal low-grade aluminum ore that is available in this country?

Secretary ICKES. There is other ore available in Arkansas and some in adjoining States, and the Bureau of Mines is now making an investigation of that in order that we may know how much there is. We are also making a study of the ability to make that into aluminum at fair prices.

The CHAIRMAN. Any questions, Senator Connally?

Senator CONNALLY. Mr. Secretary, of course, there are other factors other than power necessary for the manufacture of aluminum—the ore and the transportation and things of that kind necessarily have to be considered, do they not?

Secretary ICKES. That is right.

Senator CONNALLY. How would those operate in the Bonneville section or in the Boulder Dam section? Would they be insurmountable, or could we overcome them? The transportation, availability of the raw material and ore.

Secretary ICKES. We have been very much in favor of putting up a full-sized plant for the manufacture of aluminum out of this alunite, which is found in quite large quantities in Utah and in Washington. We don't have to have bauxite in order to make aluminum.

Senator CONNALLY. I see. They would be available?

Secretary ICKES. They would be available in the Northwest.

Senator CONNALLY. And also Boulder. Utah is not very far from Boulder Dam, is it?

Secretary ICKES. No.

Senator CONNALLY. Is there plenty of that ore?

Secretary ICKES. Alunite?

Senator CONNALLY. Yes.

Secretary ICKES. Well, Mr. Goldschmidt just told me that there is enough to manufacture 60,000,000 pounds a year for 10 years in Utah alone.

Senator CONNALLY. That is, of course, a lower grade ore than the bauxite?

Secretary ICKES. It isn't an ore, as I understand it. It is some kind of clay.

Senator CONNALLY. Have you any figures on the production cost of making aluminum from that?

Secretary ICKES. I am told that it can be made at a price considerably lower than Alcoa's cost.

Senator CONNALLY. How is that now?

Secretary ICKES. It can be made much cheaper than Alcoa is making aluminum out of bauxite, as I understand it. Maybe that is the reason it isn't viewed with such favor in some quarters.

Senator CONNALLY. Of course, the Alcoa is a monopoly, practically a monopoly.

Secretary ICKES. I suppose it is as perfect a monopoly as has ever been devised by the hand of man.

Senator CONNALLY. Don't they use a good deal of the power from the St. Lawrence? Hasn't the Aluminum Co. a contract?

Secretary ICKES. They have a plant in Canada, the Aluminium Co. of Canada. I understand the two companies are Siamese twins.

Senator MEAD. Mr. Secretary, is it possible to develop any additional power or to secure it by agreement with the Canadian Government at Massena, N. Y.—

Secretary ICKES. You mean on the St. Lawrence?

Senator MEAD. Where, I understand, the Aluminum Co. had offered to expand their plant facilities. Is there any possibility of getting additional power from Canada for aluminum expansion at Massena, N. Y.?

Secretary ICKES. I am not familiar with that situation, Senator Mead.

Senator MEAD. I am advised that there is available power, unused power, and I am not sure about it at all. It was just brought to my attention recently, and it occurs to me that if, by negotiations similar to those now pending in the Senate for added diversion at Niagara, there is the possibility of securing added power through negotiations at Massena, that should be explored by the proper authorities and arranged for without delay. I am told that the power is available and that it requires negotiation between either the New York Power Authority or the Federal Power Authority to bring the power over to Massena.

Secretary ICKES. That wouldn't come within my jurisdiction, so I have made no investigation of it. I might answer your question, though, in another way by calling attention to the fact that our output of power could be greatly increased by stand-by plants in connection with such projects as the T. V. A. and our big Central Valley project in California. The Bureau of the Budget recommended a very large sum for the steam stand-by plant at Antioch, which is in the Central Valley project in California, but we haven't had much success with it so far due, I think almost entirely, to the bitter opposition—under cover, of course—of the Pacific Gas & Electric Co. It

admits that there isn't enough power on the Pacific coast, but it strenuously opposes the effort of the Department of the Interior to increase that supply in a normal and natural and needed way by steam stand-by plants. The reason it is doing that is that we will have a great deal of power when we finish the Central Valley project, but it won't all be firm power, and the P. G. & E. thinks the Government will have to send all of that power to it because we can't make contracts with other customers by reason of the lack of firm power.

Senator MEAD. Has any agency of the Government given consideration to the development of stand-by steam plants in strategic areas in close proximity to cheap-price coal for service in this emergency?

Secretary ICKES. A suggestion was made to me sometime ago by a member of the Senate of the possibility of doing that in the Trinidad, Colo., area, where they have no water power, but they have a lot of cheap coal. There has been more or less discussion of that, and I think it might be a natural development later. Of course, what we are doing now and what we are interested in is increasing our power and firming it up where we have some hydroelectric power. I think that has to be the first step.

Senator MEAD. Yes; and in connection with the development of stand-by plants where cheap coal is available, you have to give consideration to the proximity of other necessary raw materials, such as bauxite.

Secretary ICKES. Yes; they have to be taken into account, too.

Senator MEAD. And if you found a very favorable area where aluminum could be developed under those circumstances, the availability of the necessary raw materials, I presume that it would be a fine operation to try out at this time.

Secretary ICKES. Well, it is. Here I have a memorandum on the Arkansas-Oklahoma region. That is a logical area for consideration and a program for expanding aluminum capacity because of the availability there of a major supply of bauxite. In addition, the Corps of Engineers has projected a major flood-control program that includes dams in which power installations totaling 900,000 kilowatts are contemplated. Two of these dams are already under construction—the Denison and Norfolk Dams. In addition, 54,000 kilowatts have already been installed in the Pensacola Dam, which has been constructed with the aid of Public Works funds by the Grand River Dam Authority in Oklahoma. Our engineers have determined that 300,000 kilowatts of steam facilities are desirable as a normal part of the public hydroelectric developments contemplated in this area.

In other words, Senator, we have reached a point in our hydroelectric power developments where, in order to make certain that the public money invested in those can come back within a reasonable time with interest, we have to have steam stand-by plants.

Senator MEAD. In some cases steam stand-by plants are operated more economically than hydroelectric plants where the load factor favors the steam-plant operation.

Secretary ICKES. That is true.

Senator MEAD. If I am able to secure the details with reference to this available power at Massena, N. Y., I will send it to you just as a matter of information, and I will also bring it to the attention



of the Federal Power Commission, and I hope if there is anything you can do about it that it will have your cooperation, because we are looking for instant available power facilities.

Secretary ICKES. I will be very glad to do that.

Senator CONNALLY. Mr. Secretary, I want to ask you a question. It may be wholly impracticable and not workable at all, but under the law the Government has the right to take over any plant or foundry where the owner or operator will not supply the Government with necessary defense materials at a reasonable price or on reasonable terms. Has anybody contemplated the possibility that if Alcoa doesn't behave itself we might just try a little medicine of that kind on it to see that we get this aluminum at a fair cost and on fair terms?

Secretary ICKES. I don't know.

Senator CONNALLY. I don't see that the Aluminum Co. of America is any better than anybody else. If we are going to draft other people's boys and other people's money and other people's plants wherever necessary, if they get obstreperous, I don't see why we might not just try it out on them before we try it on anybody else.

Secretary ICKES. I think it sounds all right to me. I don't know what you mean by obstreperous.

Senator CONNALLY. I mean if they are trying to extort unfair profits from the Government.

Secretary ICKES. They are very cunning in their methods. I don't know whether that comes within the definition of obstreperous, necessarily. I don't know.

Senator CONNALLY. Well, I think you know enough about words—you use a good many of them—to know what I mean by “obstreperous.” If the Aluminum Co. is obstructive and not wanting other people to produce aluminum—

Secretary ICKES (interposing). It has been precisely that, Senator.

Senator CONNALLY. Exactly.

Secretary ICKES. They have been obstructive.

Senator CONNALLY. That becomes obstreperous.

Secretary ICKES. It did its damndest to prevent us from making this contract for power with the Reynolds Metals Co.

Senator CONNALLY. When we are in an hour of crisis—

Secretary ICKES (interposing). They aren't through yet, I assure you.

Senator CONNALLY. Exactly. But if they are pursuing tactics that have the effect of restricting the supply of aluminum when the Government needs it as it never needed it before, and if they are in fact a monopoly, which seems to be generally accepted all over the country, and they are not cooperating with producing this material for the Government at a reasonable price, I don't see why we shouldn't give consideration at least to see whether it is practicable.

Secretary ICKES. I feel they are guilty under every count of the indictment you brought against them.

Senator CONNALLY. But indictments don't always get aluminum. We want aluminum.

Secretary ICKES. That is right.

Senator CONNALLY. If we can't get it any other way without taking over this plant, it seems to me that we ought to give consideration to that.

Secretary ICKES. We can get aluminum much more quickly and in greater quantity if we aren't too polite to Alcoa.

Senator CONNALLY. I haven't any special reputation along that line myself.

Secretary ICKES. I have, I suppose.

Senator CONNALLY. I mean polite. I haven't any special reputation for being extra polite when it comes to a hard-boiled business proposition. We are dealing with a hard-boiled outfit evidently, and a little hard-boiled tactics might be desirable. I just submit that. I am not an aluminum expert. It just occurred to me, though, that that might well be considered.

The CHAIRMAN. It is your theory, Mr. Secretary, that a larger number of small plants would be much better for the country than to have one outfit in control of the aluminum output?

Secretary ICKES. I should regret very much if, in the expansion of the Northwest, a very considerable addition to Alcoa's factories should be made, because then, at the end of the emergency, we would probably be confronted by the proposition that only the Aluminum Co. of America could lease or take over that great plant. I would rather see smaller units, so that other companies and individuals can compete if they want to.

The CHAIRMAN. Do you have any questions you want to ask the Secretary?

Senator BREWSTER. I am very sorry that I haven't been here to hear him, because it is a subject which he knows I am greatly interested in.

Secretary ICKES. The last time we conferred, it was on lobsters.

The CHAIRMAN. Mr. Fulton, do you have any questions you want to ask Secretary Ickes?

Mr. FULTON. Mr. Secretary, I noted that you said there is power available now which could be put to work and still more that will be available by the time that plants could be constructed to use it for aluminum.

Secretary ICKES. That is true.

Mr. FULTON. Did I correctly understand that for some 6 weeks the question of utilizing that power has been in abeyance?

Secretary ICKES. Some 6 weeks have elapsed since the proposal was presented by me to manufacture aluminum out of alunite.

Mr. FULTON. And there has been nothing whatever that has occurred during the interval that the O. P. M. has had your recommendations?

Secretary ICKES. So far as I know, nothing has come back to me of a final or semifinal character.

Mr. FULTON. And then with respect to the orthodox method that has been pursued over the past period of years, has there been negotiation to utilize the existing power at once?

Secretary ICKES. There have been no negotiations opened up with me—merely tentative proposals, suggestions perhaps I might say, that they are working on a plan for enlarging aluminum plant capacity, particularly in the Northwest, where of course, I am interested.

Mr. FULTON. The O. P. M. has furnished us with general information to the effect that they expect to create an additional facility for 600,000,000 pounds, but that is more or less meaningless until you get

down to the point of finding out where your power is going to be and actually start to build a plant to use it.

Secretary ICKES. I assume that they are working on all of those and completing their facts.

Mr. FULTON. But so far as you are concerned, they haven't been negotiating with you for the specific locations or specific power to a specific job of producing some aluminum for us?

Secretary ICKES. No.

Mr. FULTON. And you are ready—

Secretary ICKES (interposing). There has been some general talk about locations, but that is all.

Mr. FULTON. But you are ready to go ahead with specific talk about locations any time they are ready to come and talk about it?

Secretary ICKES. Yes; any time.

Mr. FULTON. As Senator Truman pointed out, since we are almost weekly increasing our airplane program and thereby increasing our demand, we have to act soon if we want to be sure we will have aluminum to put into those plants.

Secretary ICKES. That is right.

Mr. FULTON. With respect to the power estimates that I believe you gave Senator Ball, did I understand you to say that those estimates are in your opinion too low and will ultimately have to be revised still further?

Secretary ICKES. That is our opinion. They will have to be revised upwards.

Mr. FULTON. You can create the power by steam plants, of course, but you have to have the boilers and generator facilities?

Secretary ICKES. That is right.

Mr. FULTON. Which take a long time or at least months to build.

Secretary ICKES. You can't build those overnight.

Mr. FULTON. And water power is even more difficult to build.

Secretary ICKES. In some cases where you have dams, you may need generators. That is our situation in the Northwest now. We need more generators.

Mr. FULTON. Does that mean, then, that if we don't start erecting some power facilities soon, we will be faced with power shortages similar to the oil shortage that we now have?

Secretary ICKES. I don't think there is any question about it. Of course, the oil shortage is an oil transportation shortage that applies only to the Atlantic coast. They have plenty of oil down in Senator Connally's State.

The CHAIRMAN. Is it possible to transport that oil—since we are on the oil subject now—by tank cars as well as by pipe lines?

Secretary ICKES. Yes; if we have enough tank cars and can afford to pay the price.

The CHAIRMAN. I know we have enough tank cars in the Middle West, Mr. Secretary, to haul all of the oil we need to the East. All we need to do is to put them on the line and haul them. They haven't been using them.

Secretary ICKES. I am going to look it up today.

The CHAIRMAN. It is true. You know, we have the same situation in the oil industry that we have in the aluminum industry. It is controlled by three people: Rockefeller, Morgan, and Mellon. And there



are a lot of small, independent operators out in the Middle West who know a great deal about this oil situation. I hope you will call them in and use their advice. They tell me that there are plenty of tank cars to haul this gasoline and oil east if we want to use them.

Secretary ICKES. I am holding an open conference on the whole question of oil next Thursday, Senator, and everybody is invited.

The CHAIRMAN. That would be fine.

Senator BREWSTER. Would the Secretary confirm your statement, Mr. Chairman, about the control?

Secretary ICKES. About petroleum?

Senator BREWSTER. Control.

Secretary ICKES. Of the oil business? Well, I am Petroleum Coordinator now, and that has made a diplomat of me.

The CHAIRMAN. I didn't want to ask you that question; and I am making that statement and I don't think it can be contradicted.

Senator BREWSTER. Have you touched in your earlier statement on this situation in the Northwest, where I gathered the impression from some evidence we have earlier received that the Aluminum Co. might have been ready to develop further facilities out there if they could get some of your power? Have you touched on that?

Secretary ICKES. Of course, we have now in existence a contract with the Aluminum Co. which we made some time ago. I have opposed giving any more power to the Aluminum Co. as such. They know that, and they know my reasons. I did refer to that in my statement. But we are perfectly willing to build plants at Government expense and have aluminum turned out under Government contracts, and we are ready to discuss the terms of those contracts. Oh, we could get down to it in half an hour—an hour at the most.

Senator BREWSTER. You mean that would be some other agencies than the aluminum Co.?

Secretary ICKES. It might be the Aluminum Co. of America, under a management contract, however.

Senator BREWSTER. Yes. Government-owned plants.

Secretary ICKES. We think that the Government ought to insist upon terms that won't make it possible for the Aluminum Co. to put on any financial or other screws at the end of the emergency.

Senator BREWSTER. What is your view, Mr. Secretary, about the provision for these private concerns to acquire the facilities at the end of 5 years?

Secretary ICKES. It depends on what terms.

Senator BREWSTER. I understand the provision has been that they could have them at cost, less depreciation.

Secretary ICKES. So far as aluminum is concerned—I am not evading your question, but I am not quite answering it, either—I think that the Government ought to retain the right to lease for operation, or operate itself, or sell, and the sale price, of course, would be based upon the original cost, improvements, and depreciation.

Senator BREWSTER. Do you think the Government should commit itself to sell at such a figure in 5 years, when inflation may have doubled and trebled the values?

Secretary ICKES. No; I said that the sale price would take those factors into consideration. That is not agreeing of subscribing to a policy of a fixed price now, when we can't foresee what the situation will be in 5 years.

Senator BREWSTER. I have personally had great concern about the character of those contracts on account of that danger, and in justice to the representative of the Aluminum Co. of America who appeared here, he testified that he felt the same way and that the Aluminum Co. would not stipulate any such requirement, that they would, as I understood him, be ready to undertake management proposals, such as you had in mind, without insisting on the right of acquisition.

Secretary ICKES. That would be satisfactory so far as I am concerned, reserving, however, as I said, the right to the Government to continue to operate or to lease or to sell.

The CHAIRMAN. That is all, Mr. Secretary.

Secretary ICKES. Here is a suggestion that Mr. Goldschmidt just handed me. I think it is a good one.

We will have a power shortage next year, and we can't meet aluminum requirements without civilian curtailment of power consumption until 1943.

Did I read that right? I can't read his writing. He hasn't a single comma or period in it. [Laughter.]

The CHAIRMAN. Well, isn't it true, Mr. Secretary, that there is under consideration (Mr. Goldschmidt can make the statement if you want him to) the cutting down of the private use of power for the benefit of these makers of aluminum? And if that is done, what are we going to cut out? Are we going to cut out washing machines or light or what?

Secretary ICKES. I apprehend that most of the domestic uses of aluminum will either be curtailed—

The CHAIRMAN (interposing). I mean power. I mean cut out the power so that it can be used for the making of aluminum.

Secretary ICKES. Oh, yes. Well, I don't know. I can't answer that off-hand.

The CHAIRMAN. Who is going to give the order on that, and who is going to control it?

Secretary ICKES. I suppose that would be one of the defense agencies.

The CHAIRMAN. O. P. M.?

Secretary ICKES. I don't know.

The CHAIRMAN. Go ahead with your statement, Mr. Goldschmidt.

Mr. GOLDSCHMIDT. I simply wanted the Secretary to make the point that we will probably have a power shortage next year and that without civilian curtailment we could not meet the present estimates of aluminum capacity that is needed; and we can only meet them in 1943 if we are permitted to get busy now with building additional generating facilities.

Senator CONNALLY. Why shouldn't we curtail civilian uses? I don't see any reason why we couldn't curtail civilian uses of aluminum.

Mr. GOLDSCHMIDT. Civilian use of power, Senator.

Senator CONNALLY. I know, but you said awhile ago, What are we going to curtail—washing machines, and so forth?

The CHAIRMAN. The power for the washing machines.

Senator CONNALLY. The same thing—the power for them. It is the same proposition. The power is used for producing them. I don't see why we shouldn't curtail domestic civilian use.

Secretary ICKES. I think all the citizens are willing to make sacrifices in that or any other direction, but we would like to see first every effort made to provide us with the power that we need.

Senator CONNALLY. That is true.

Secretary ICKES. We cook with power; we light with power; we run our radio with power; we run our washing machines with power.

The CHAIRMAN. I don't think the public is at all averse to making necessary curtailment, but if they have to be curtailed on account of somebody's negligence in furnishing the necessary power when it can be obtained, I think then they would balk about it.

Secretary ICKES. I don't think that any of us would feel very happy to curtail because the Aluminum Co. of America was trying to make a monopoly.

Senator CONNALLY. If somebody were breaking in your house, you would certainly stop the washing machine long enough to go out there and shut the door and keep him out.

Senator BREWSTER. Did you, Mr. Secretary, refer to the St. Lawrence project in connection with this as one of the possible sources?

Secretary ICKES. I was asked one question by Senator Mead which I was unable to answer because of lack of familiarity with the facts.

Senator BREWSTER. I suppose you would say the same thing about the Quoddy tidal project.

Secretary ICKES. Well, I think you and I have discussed that.

Senator BREWSTER. We have got quite a lot of power up there that has been going to waste for a good many centuries.

Secretary ICKES. Yes; but one difficulty with going ahead with that, you know, was a little too much of the Yankee. The State of Maine, which I believe you honor in representing—you may be interested in this—was perfectly willing to have that power developed and brought in, provided we didn't sell any of it in the State of Maine. In fact, there is a law on the statute books which would have made it impossible for us to sell any in the State of Maine. They were willing to supply power from Maine to the neighboring States—Vermont, New Hampshire, Massachusetts, and New York—but not to Maine. Isn't that about right?

Senator BREWSTER. Yes; but I think it should be added, Mr. Secretary, that in accordance with a proposal which you and I have discussed, we had no question, I think, that if the project could go forward, the State of Maine would make what was considered by Colonel Fleming, who represented the Government, and yourself, I think, a satisfactory arrangement as to the disposition of the power, either within or outside the State. I thought you were going to make the point that we wouldn't allow any power to be sold outside Maine, which is our historic policy, but while I was Governor, the law was amended to allow it in this instance.

The project is made much more feasible by our present Canadian-American relations as to the international development, which I think the engineers have always recognized—

Secretary ICKES (interposing). You see, I have had nothing to do with Quoddy since Public Works was transferred from me, so I haven't followed it, but I know up to that point, as I think I stated, the situation as of the date I turned it over.

Senator CONNALLY. You mean Maine is willing to sell power but doesn't want to buy any?



Secretary ICKES. No; it isn't as simple as that. Maine wanted to keep what it had in the way of power development and to have new development to sell to neighboring States.

Senator BREWSTER. Would you, Mr. Secretary, instead of saying "Maine," say "the Maine power companies" wanted that policy.

Secretary Ickes. I thought it would be understood that I was referring to the Maine Power Co.

Senator BREWSTER. And the Maine Legislature, I think, would unquestionably work out an arrangement agreeable to the Government in that regard which was formulated.

The CHAIRMAN. That is all, Mr. Secretary.

Mr. Wilson.

Mr. FULTON. Mr. Wilson is appearing, only, as I understand it, pursuant to a subpoena issued because he desired to have a subpoena in order to force his appearance.

#### STATEMENT OF F. B. INGERSOLL, COUNSEL, ALUMINUM CO. OF AMERICA, PITTSBURGH, PA.

Mr. INGERSOLL. No; that is not correct, sir.

The CHAIRMAN. Will you gentlemen please come around here where you may be heard and sworn, and then you may say all you want to.

Do you swear to tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. INGERSOLL. I do.

Mr. WILSON. I do.

Mr. FULTON. Mr. Ingersoll, I understood that Mr. Wilson preferred not to appear unless he were subpoenaed, and in that event, of course, the committee would subpoena him.

Mr. INGERSOLL. That is not correct, sir. I asked if you would be good enough to subpoena Mr. Wilson after he appeared here this morning.

Mr. FULTON. That is what we are doing here.

Mr. INGERSOLL. I just wanted to make sure he was here before the subpoena was issued.

The CHAIRMAN. He has the subpoena here. I served it myself. That ought to be authority enough. Mr. Fulton just had a question or two he wanted to ask Mr. Wilson, and then we will proceed with the Aluminum Co. tomorrow. We are going to ask only a formal question or two of Mr. Wilson, and then we will proceed with their case in full tomorrow.

#### TESTIMONY OF I. W. WILSON, VICE PRESIDENT IN CHARGE OF OPERATIONS, ALUMINUM CO. OF AMERICA, PITTSBURGH, PA.

Mr. FULTON. Mr. Wilson, will you state your connection with the Aluminum Co.?

Mr. WILSON. I am a vice president of the Aluminum Co. of America.

Mr. FULTON. And are you the man who is generally referred to as the one who knows most about the facts with respect to the aluminum production and cost? I mean by that, are you the one whom they refer such questions to for answers?

Mr. WILSON. I am rather at a loss, Mr. Fulton, to know just how I am referred to by others. I do have in my responsibility the production of aluminum.

Mr. FULTON. As I understand it, you have been a witness in various proceedings for the Aluminum Co. on questions of production.

Mr. WILSON. I have been a witness in one proceeding. I remember only one.

QUESTION OF FAILURE OF ALUMINUM CO. OF AMERICA TO FURNISH  
INFORMATION REQUESTED BY COMMITTEE

Mr. FULTON. I wanted to address a question to someone who would be able to give an answer, and it is this: Why hasn't the committee been able to get the information from the Aluminum Co. that it requested at the time of the hearings some weeks ago?

Mr. WILSON. You refer to request made of Mr. Gibbons, I believe, Mr. Fulton?

Mr. FULTON. To, I believe, 8 or 10 requests made of Mr. Gibbons on various occasions, and I would like to know why the Aluminum Co. has not been able to furnish that information.

Senator CONNALLY. Were those requests in writing?

Mr. FULTON. Some were in writing, and some were oral.

Senator CONNALLY. Of course, orally, I wouldn't think much of that.

Mr. FULTON. They were also in the hearing, Senator Connally.

Senator CONNALLY. That would be in writing. The reporter is taking it down.

Mr. WILSON. As far as I am familiar with it, I understood that those requests had been complied with.

The CHAIRMAN. They have not. I made one of those requests myself here for the record, and that request has been ignored completely.

Mr. WILSON. I am not familiar with the instances, so that I can't answer. To the best of my knowledge, any request that has been made has been complied with.

The CHAIRMAN. The Aluminum Co. is a rather large organization, but it is hardly large enough to defy the United States Senate, and I suggest that you get us that information as expeditiously as possible.

Mr. WILSON. May I assure you that there is no question of any defiance at all, Senator Truman.

The CHAIRMAN. Apparently you have ignored the requests that we have made. We have made them in every way possible, and we have tried to be as courteous as possible to your organization.

Senator CONNALLY. Mr. Chairman, may I suggest at this point that, if those written requests are available, they ought to be put in the record and called to Mr. Wilson's attention, in all fairness to him.

The CHAIRMAN. They will be.

Mr. FULTON. I think they were called to his attention by one of the committee's investigators last Friday, and they were also called to Mr. Gibbon's attention by various letters, in which he first set dates being the dates he could furnish the information.

Senator CONNALLY. Have those things been put in the record already or not? I think in fairness to Mr. Wilson, he has a right to know what we have asked for.

The CHAIRMAN. It will be put in the record.

Senator CONNALLY. After he knows, he can tell us why compliance has not been had.

Mr. WILSON. I am at a complete loss to know what is being referred to.

The CHAIRMAN. Those things will be put in the record. He has until tomorrow.

Senator CONNALLY. They may be going to be put in the record, but in all fairness to—Mr. Wilson, is it—

Mr. WILSON. Yes.

Senator CONNALLY. In all fairness to him, I think the committee ought to tell him. If his subordinates received these and he doesn't know about them, I think that before he is called upon to testify about them, he is entitled to have copies of the formal requests which the committee has made so that he can know why and tell us why the information has not been given to us.

The CHAIRMAN. That will be made part of the record, sir.

Senator CONNALLY. I think, even in a trial, with a defendant, he has a right to a copy of the indictment and the charges therein set forth.

Mr. FULTON. Mr. Wilson, is it your testimony that you haven't been aware of the requests that this committee has made for information?

Mr. WILSON. I know there have been such requests made. I, personally, have taken no part in the assembling of any such information or the reply to any such requests.

Mr. FULTON. And did you have any discussions with an investigator of this committee on Friday or Saturday of last week with respect to these specific requests?

Mr. WILSON. I did with Mr. Stix.<sup>1</sup>

Mr. FULTON. So you do know, I believe, the nature of the inquiries that we have been addressing our attention to?

Mr. WILSON. I knew the instances which were called to my attention by Mr. Stix.

Mr. FULTON. And can you get us that information?

Mr. WILSON. My understanding is that such information as is available in reply to those inquiries have been furnished to the committee.

Mr. FULTON. That isn't my understanding. I don't have the replies to the questions that I asked, and particularly I am referring to the question of the cost to the Aluminum Co. of producing aluminum.

Mr. WILSON. Those, I understood, were given to the committee or, I thought, to you, Mr. Fulton, this morning.

Mr. FULTON. I haven't received them.

Mr. WILSON. Then it has been, I think, that you haven't been in your office or wherever you would receive them.

Mr. FULTON. I was there from 8 to 10:30 this morning.

Senator CONNALLY. Mr. Chairman, why shouldn't we recess this hearing until tomorrow and submit to Mr. Wilson in the meantime, or instruct the counsel and the secretary or whoever is doing this thing, to submit to Mr. Wilson, now or this afternoon, these requests, and

<sup>1</sup> Henry A. Stix, committee investigator.



then give him time so that he may come here tomorrow and explain that?

Mr. WILSON. I have been advised that those letters that I referred to were given to Mr. Clark <sup>1</sup> this morning, who, I understood, was your assistant, Mr. Fulton.

Senator CONNALLY. You can ascertain all that by tomorrow, Mr. Wilson?

Mr. WILSON. Yes, sir.

Senator CONNALLY. I think that is fair; I think the witness has a right to know what we have demanded of him and then tell us why we haven't got it, if we haven't. So I think we ought to excuse Mr. Wilson, unless there is some other matter to be interrogated about, and let him come in tomorrow and give him a chance.

The CHAIRMAN. The only reason we put Mr. Wilson on was to be sure that we would have the information.

The committee will take a recess until 10:30 tomorrow morning.

(Whereupon, at 11:50 a. m., the committee recessed until 10:30 a. m., Tuesday, June 17, 1941.)

---

<sup>1</sup> Charles P. Clark, Associate Chief Counsel.



# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

TUESDAY, JUNE 17, 1941

UNITED STATES SENATE,  
SPECIAL COMMITTEE INVESTIGATING  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:35 a. m., pursuant to adjournment on Monday, June 16, 1941, in room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Joseph H. Ball, Ralph O. Brewster, Tom Connally, and James M. Mead.

Present also: Hugh A. Fulton, chief counsel; and Charles P. Clark, associate chief counsel.

THE CHAIRMAN. The committee will come to order. Mr. Wilson?

You were sworn yesterday, were you not?

MR. WILSON. I was, Senator.

THE CHAIRMAN. Did you give your full name and connections to the reporter yesterday?

MR. WILSON. I did.

THE CHAIRMAN. All right. I believe you have a statement you want to make to this committee.

MR. WILSON. I would like to if I may.

THE CHAIRMAN. Proceed.

## TESTIMONY OF I. W. WILSON, VICE PRESIDENT IN CHARGE OF OPERATIONS, ALUMINUM CO. OF AMERICA, PITTSBURGH, PA.—

Resumed

MR. WILSON. We have taken the liberty of preparing a short statement in the hope that it may answer briefly and concisely many of the matters which we judge from inquiries made at previous hearings are in the minds of the members of this committee. I think it will save the time of all of you gentlemen if I read it into the record at the beginning of my testimony.

I want to assure the committee of the wholehearted desire of the Aluminum Co. of America to assist you gentlemen in your investigations regarding the situation with respect to aluminum. We appreciate that you are earnestly seeking to do everything in your power to assure adequate supplies of this metal for the requirements of the country, particularly those necessary in connection with the defense program. We are glad to render any assistance that we can.

At the outset we want to clear up any misunderstanding that may exist in the minds of the committee that there has been any reluctance



on the part of the company to furnish information requested by this committee and its counsel, or that there was any failure on the company's part to do so prior to the hearing yesterday. All the available data requested except certain cost figures, were mailed from Pittsburgh to Mr. Fulton last Thursday, and presumably were received by him on Friday. The cost figures could not be completed by that time.

The preparation of the material requested, particularly the cost figures, required a great deal of time. The cost figures were not completed until late Sunday night.

Monday morning, shortly after 9 o'clock, Mr. Wilber, of the Aluminum Co., telephoned Mr. Fulton to ask where these cost figures should be delivered. Mr. Fulton replied that he wanted them delivered to Mr. Stix in room 160, Senate Office Building. A messenger was immediately sent and these papers were laid on Mr. Stix's desk at approximately 20 minutes before 10 o'clock Monday morning. At the conclusion of the hearing Monday, I went with Mr. Stix to the latter's office and there found the papers on Mr. Stix's desk.

#### STATEMENT BY ALUMINUM CO. OF AMERICA

Mr. WILSON. At the hearing Monday, Secretary Ickes made statements challenging the good faith of the Aluminum Co. of America in its efforts to aid in this country's defense program. We welcome the opportunity to refute these accusations and we believe that when the facts are known no fair-minded person can fail to agree that the Aluminum Co. has done everything within its power, and more, probably than any other corporation in the United States to uphold the President and the Congress in building up our defenses.

We first want to tell this committee some of the details of what this company has done, and is doing, to increase its production of aluminum.

In 1938, when our plants produced 286,881,690 pounds of aluminum, and our total shipments were only 175,525,773 pounds, the Aluminum Co. of America finished the year with an inventory of 277,533,066 pounds of aluminum, or more aluminum than normally would be used in a year.

As late as April 3, 1939, Congress had only authorized the Navy to build 3,000 planes, and the Army 6,000. Such a program required no expansion of production facilities, particularly when the Aluminum Co. of America already had more than a year's supply of metal on hand. Yet late in 1938 the company did inaugurate a program which, with the additions since made to it, calls for a capital expenditure of over \$200,000,000 of the company's money, and which has resulted in an increase in the number of its employees from twenty-five to about fifty thousand.

The Aluminum Co. of America is now producing well over double the amount of aluminum produced in 1938 and when its present program is completed the production of 1938 will be almost tripled. The expansion of the production of aluminum is not as simple a matter as is the expansion of many other industries. As this committee is well aware, the production of aluminum requires enormous quantities of electric power. It takes not only large sums of money, but many years to build the extensive hydroelectric developments

necessary to get blocks of power in the magnitude required. An aluminum plant without electric power is useless.

In addition to the acquisition of the needed power, this increase in the production of aluminum has already required the doubling of the production of alumina, the tripling of the steamship tonnage used in bringing bauxite from South America to this country, and the doubling of the production of bauxite as well. A further expansion of all these facilities is a necessary part of the existing program.

This expansion included large additional facilities for manufacturing fabricated forms. Within a few months the company's capacity to produce strong alloy sheet and extruded shapes will be six times that at the beginning of 1938, while our ability to produce aluminum forgings will be 16 times that of the beginning of 1938. All of these products are of vital interest to the aircraft industry.

An inquiry has been made concerning the Aluminum Co.'s attitude with respect to the Fontana power project which will require 3 years to complete. Some months ago a declaration of intention was filed with the Federal Power Commission for this project in the belief that the Commission would not require a Federal license. Such a license permits the Government to take over the project at the end of the license period on terms that might be confiscatory. The Commission, however, made a ruling that would necessitate taking out such a license. The company felt then, and still feels, that in the light of its other huge expenditures for the defense program it cannot, with proper regard for its financial stability, put up its money to develop this project in the face of the Government's power to take over the property at the end of the license period. Notwithstanding this feeling, the Aluminum Co. has informed O. P. M., and also T. V. A., that it stands ready to take out a license and develop this project if the Government will assist in financing the development; or, the company will sell the project to T. V. A. so that that Authority may develop it; or if neither of these alternatives is acceptable the company is ready to cooperate in any other way that will make the power from this development available for the production of aluminum. The company now reiterates that position. This matter is, and for some time past has been, under consideration by Government agencies, and the Aluminum Co. is ready to proceed in any manner that they may determine.

We have been criticized on the theory that estimates by various governmental agencies were in some way mistakes attributable to the Aluminum Co. of America. This we emphatically deny.

Many of the things that have been said before this committee concerning aluminum seem to be based on the assumption that it is the function of a private industrial corporation, in this case the Aluminum Co. of America, to estimate not only what it will produce to meet the defense needs of the United States, but also to set itself up as an authority for what those needs are. Under this assumption we should not only have been able to tell how much aluminum will be required, for instance, to build the number of airplanes needed to defend the democracies, but to forecast how many of these planes will be needed.

We have not presumed to tell Congress, the Army, or the Navy how many planes are needed for defense. Our function as to fore-

casts is, and can only be, to tell what we will produce, and how far we can expand under the instructions and requests of the Government, and then to produce such aluminum. There has never been a single month when we have not exceeded the amounts of such forecasts.

We understand that the present estimates of O. P. M. call for the production in this country of at least 1,400,000,000 pounds of aluminum per year. Last October the Defense Commission advised the company that it should increase its production by an additional 100,000,000 pounds per year or thus to a total of 850,000,000 pounds per year. The company thereupon submitted to the Defense Commission a program of further expansion which would have increased production by more than 100,000,000 pounds per year within a period of from 6 to 8 months. Since then O. P. M. has been advised by the company, again and again, that if O. P. M. would procure the necessary electrical power, the company would increase production by such further amounts as the Government wishes. But it has not yet, to this very hour, been possible to determine at what place, or in what amounts, electrical power will be made available and until this is known, the company cannot proceed with the construction of the necessary plants in which to produce the additional aluminum desired by the Government.

Mr. Ickes stated Monday to this committee: "I have a profound conviction that the Aluminum Co. of America would prevent the necessary expansion of our aluminum-manufacturing facilities, regardless of the consequences to the country or the world, in order to get them all within its own domination and control." He further stated, referring to the Aluminum Co. of America, "It did its damndest to prevent us from making this contract for power with the Reynolds Metals Co."

We want to state without reservation that the Aluminum Co. has no desire to prevent the necessary expansion of the aluminum manufacturing facilities in this country, or to get them all within its domination and control. We are interested in but one thing, that there be sufficient aluminum produced to meet the defense needs of our country. Furthermore, the Aluminum Co. has never in any way done anything to make it difficult for the Reynolds Metals Co., or anyone else, to go into the aluminum business, and has never endeavored to prevent the Reynolds Metals Co. from obtaining power.

The company has no desire to use the present emergency for the purpose of increasing its own position in the industry. This is shown by the fact that the company has repeatedly offered to put all of its technical resources at the Government's command, to design and build plants for Government operation, if it so desires, and to furnish the technical staff to make this possible or if the Government prefers, to operate for the Government under a management arrangement. The company has offered to use its own resources, as far as they will go, in financing any expansion program adopted by the Government, in addition to the \$200,000,000 it has already used for expansion. No company could offer to do more.

Monday Secretary Ickes referred to a request of February 4 from O. P. M. for an additional 65,000 kilowatts of Bonneville power, and explained why he would not allot it to the Aluminum Co. He



also said that later he was again asked to allot 65,000 kilowatts of additional power to the Aluminum Co. and gave another explanation as to why he would not do that. Secretary Ickes failed to point out and perhaps he did not know that the Aluminum Co. has continuously, over the last 6 months or more, told the governmental agencies that it would make all the aluminum for which power could be obtained.

In the face of that record; in the face of the fact that the Aluminum Co. has already doubled and will shortly triple its 1938 output; and in the fact of the further fact that the Aluminum Co. is spending over \$200,000,000 of its own money to advance defense; it is hard to understand how Secretary Ickes could state to this committee Monday, that, "When the story of this war comes to be written, it may have to be written that it was lost because of the recalcitrance of the Aluminum Co. of America."

Secretary Ickes may know how wars are lost, but you gentlemen know that wars are won by using as quickly as possible every available resource for the production of war materials.

Allegations have been made that the Aluminum Co. of America is a monopoly and is a party to agreements with various foreign companies, or foreign agencies, under which it is claimed production of aluminum has been restricted in this country. These and other similar questions are now pending in the courts against the company and its officers. In view of the fact that these suits are still undjudicated, we feel constrained to remain silent in the face of these charges, believing it to be improper to discuss, or make any representations, publicly regarding matters which are still pending before the courts for decision. Suffice it to say that all of the principal officers of the company have vigorously denied that any such agreements exist, and they likewise have denied such charges are justified. I can assure you that it is no easy matter to be compelled to keep quiet in the face of charges that we regard as unfounded, but the proprieties of the situation have unfortunately made this necessary.

The Aluminum Co. of America was the first company in the world ever to produce aluminum at a price which brought it into commercial use. It pioneered the industry. It is still the foremost company in the aluminum industry, in spite of the fact that it has had the most severe competition from foreign companies, at least one of which is Government-owned.

The Aluminum Co. of America has given the United States leadership in this industry, both from the standpoint of knowledge and technique, as well as quality of product. Until Germany came into the fruition of its enormous armament program in 1939, the productive capacity in the United States was the greatest of any country in the world. In pioneering this industry, the principal job of the Aluminum Co. of America has been to find new uses for the metal. The problem of the company, therefore, has heretofore been not the production of aluminum but the finding of people who would buy the metal and use it.

Let me assure you gentlemen that the sole desire of the Aluminum Co. of America is to be allowed to use its every resource in the pro-

duction of aluminum for the defense of the country. We urge that we be allowed to do so.

Mr. FULTON. Mr. Wilson, are you familiar with the facts stated in the statement that you have just read and with the underlying evidence on which they are based?

Mr. WILSON. I believe generally so, and I would hope specifically so.

Mr. FULTON. Now, with respect to these questions and the information furnished to the committee, are you aware that on May 24 and 26 the committee addressed inquiries to the Aluminum Co. for certain information?

Mr. WILSON. I am sorry, I am not used to being photographed; it throws me off the stride.

Mr. FULTON. Are you familiar with the letters of May 24 and 26 which were shown you yesterday from the committee to Mr. Gibbons?

Mr. WILSON. I have seen them; I don't know as I can say I am familiar with them.

Mr. FULTON. In preparing this statement, have you studied those letters?

Mr. WILSON. I had those letters in mind.

Mr. FULTON. And have you been familiar with the information that was requested in the letters and with the information that was furnished in response to those letters?

Mr. WILSON. I think so.

Mr. FULTON. Do you now regard that information as an answer to the inquiries in those letters?

Mr. WILSON. I do.

Mr. FULTON. A complete answer and a fair answer?

Mr. WILSON. I do.

Mr. FULTON. Now, with respect to those, I believe that you will note that on May 27 Mr. Gibbons said that it would take 10 days or 2 weeks to compile the information. Is that correct?

Mr. WILSON. I don't recall seeing that in the letter to that effect, but I don't question it if you say so.

Mr. FULTON. In other words, in preparing this statement you didn't read Mr. Gibbons' correspondence with me?

Mr. WILSON. I didn't see any such letter as you refer to.

Mr. FULTON. But in preparing that statement, did you read Mr. Gibbons' letter to me?

Mr. WILSON. I read his letter of the 14th, I believe it was.

Mr. FULTON. Did you read his letter of June 2?

Mr. WILSON. No; I don't think I did. I don't recall any such letter.

Mr. FULTON. So that in preparing the statement you didn't have before you the complete correspondence.

Mr. WILSON. Apparently not if there was such a letter.

Mr. FULTON. And would you recognize the letter?

Mr. WILSON. If I don't recall the letter I can't say whether I would recognize it or not, Mr. Fulton.

Mr. FULTON. In that letter Mr. Gibbons stated that it would take 10 days or 2 weeks to prepare the information, and he was asked by me to have it ready at the end of the full 2 weeks, which was the 9th of June. Now, was any information at all sent to this committee by the 9th of June?

Mr. WILSON. Not that I know of.

Mr. FULTON. And was any information sent, by the 11th of June when I telegraphed asking that it be sent and that I receive confirmation that it was in the mail?

Mr. WILSON. If I recall the date correctly, I think it was the 12th of June that Mr. Gibbons sent you the first information on our side.

Mr. FULTON. After he had received the information pointing out that more than 2 days over the time that he had specified as the maximum had already expired without even so much as a reference from you people to the fact that you were about to send it. Is that correct?

Mr. WILSON. If you say so, if that is the knowledge here. I don't question it.

Mr. FULTON. But in preparing this statement you didn't bother to find out what the chronology was.

Mr. WILSON. I didn't see the files.

Mr. FULTON. I think it was on the 12th, wasn't it, that you received telephone calls in addition to the telegram?

Mr. WILSON. I personally?

Mr. FULTON. The Aluminum Co. Or perhaps you didn't investigate to find out whether that also was done.

Mr. WILSON. I did not. I didn't know of a telephone call except the one that I personally had.

I would like to state, if I may at this point, that I have been continuously in Washington for more than a week now. I haven't had the benefit of any files that may be in Pittsburgh on that subject.

Mr. FULTON. Well, in preparing this statement and in reading the May 24 letter, did you note that that letter asked for information concerning the Fontana power project and other water sites?

Mr. WILSON. I believe one of the letters did; yes.

Mr. FULTON. And do either of the two letters that you refer to from the Aluminum Co., in this statement that you say answers our questions, give us the information on the water-power sites?

Mr. WILSON. I have the impression that the letter from Pittsburgh didn't submit that information.

Mr. FULTON. Is this the Thursday letter, the June 12 letter?

Mr. WILSON. May I see your letters of May 24 and 26, Mr. Fulton?

Mr. FULTON. Mr. Stix, do you have those letters here? Mr. Wilson, would you first answer whether you see anything in that June letter that you have before you, referring to the Fontana project?

Mr. WILSON. No; I do not.

Mr. FULTON. Do you know of anything in any of your letters referring to the Fontana project?

Mr. WILSON. No; I don't. No; there was nothing in the letter of June 15 that referred to it, and the only two letters that I know in which information was sent to you were June 12 and 15.

Mr. FULTON. And the May 24 letter says, "In addition to the Fontana project the committee would like to know what other idle water power sites the Aluminum Co. owns and what plans they have for the development thereof."

Mr. WILSON. I would like to repeat my request that I be permitted to see your letters of May 24 and 26.

Mr. FULTON. Will you look at the bottom paragraph and tell me if I read this incorrectly to you?



Mr. WILSON. As I read this letter—I can't answer how Mr. Gibbons may have read it—it refers to the fact that Mr. Davis<sup>1</sup> will be asked to give further testimony on certain subjects, and after stating that it says—I will read this in. It says, "In particular, the company would like to have Mr. Davis' testimony with respect to the Fontana project."

The CHAIRMAN. That is this committee; the committee would like to have his testimony.

Mr. WILSON. Yes, sir. And then the next paragraph says, "In addition to the Fontana project, the committee would like to know what other idle water-power sites the Aluminum Co. owns and what plans they have for the development thereof." I wouldn't interpret this letter as a request for information to be filed with the committee. It states that you expect to ask Mr. Davis to testify on this subject.

Mr. FULTON. And you assumed that it wasn't asking for the information?

Mr. WILSON. I wouldn't interpret it that way. As I say, I do not know how Mr. Gibbons may or may not have interpreted it.

Mr. FULTON. Now, with respect to the financial statements, are you familiar, as a vice president of the Aluminum Co., with the financial statements that are prepared for it?

Mr. WILSON. In a general way; not in full accounting details.

Mr. FULTON. And, with respect to the financial statements that were sent to this committee, do you regard them as an answer to the request for information as detailed as that available to the officers and directors of the company?

Mr. WILSON. I think those are the only statements which we have that fill this request, Mr. Fulton.

Mr. FULTON. In other words, you have no financial statements except those you sent to your stockholders for the year 1940.

Mr. WILSON. No, sir.

Mr. FULTON. Which were available to the officers and directors of your company?

Mr. WILSON. Well, there are a great many detailed statements broken down that I can't imagine would be of interest to the committee in that they are voluminous.

Mr. FULTON. In spite of the fact that I asked for information as detailed as that which was made available to the officers and directors of the company? I believe you will find that in the May 26 letter. I believe that is sufficiently explicit for you even to read it that way.

Mr. WILSON. May I read into the record from the letter?

The CHAIRMAN. Proceed.

Mr. WILSON. The letter of May 26 from Mr. Fulton to Mr. Gibbons reads:

I would also like to have copies of the financial statements of the Aluminum Co. of America for 1940 and for the first quarter of 1941. If published statements are not available or if they are not as detailed as the statements prepared for the officers or directors, please send the latter statements.

Mr. FULTON. How do you construe that?

Mr. WILSON. I would construe it that if those were the only type of statement that was available, that that is what you felt that this committee wanted.

<sup>1</sup> Arthur V. Davis, chairman of the board, Aluminum Co. of America, whose testimony appears, *infra*, p. 940 et seq.

Mr. FULTON. That we wanted statements as detailed as those furnished to the officers and directors, and now I ask you whether you did furnish those statements.

Mr. WILSON. I think Mr. Gibbons has furnished what is a perfectly logical interpretation of the request made upon him in the letter of May 26.

Mr. FULTON. Then you mean that you do not have for your officers and directors more detailed statements than the one you furnished to me at 10 o'clock yesterday morning?

Mr. WILSON. Well, I don't know. It was sometime before 10 o'clock.

Mr. FULTON. Well, do you have more detailed statements than those?

Mr. WILSON. I beg pardon?

Mr. FULTON. Do you have more detailed statements than those?

Mr. WILSON. There are, I am sure, underlying statements that are consolidated into this general financial statement, but they would be very voluminous.

Mr. FULTON. And it was because they were voluminous that you decided that?

Senator CONNALLY. Mr. Chairman, I think this is argumentation. Why don't they put in the record what he called for and put in the record what he said?

Mr. FULTON. That is already done.

Senator CONNALLY. It is up to the committee to determine whether it is in compliance or not.

Mr. FULTON. I asked that they furnish us with exactly what we had asked in that letter, namely the same financial statements that were available to the officers and directors of the Aluminum Co.

Senator CONNALLY. Of course, anybody knows that you couldn't furnish all the detailed statements in the whole office. I don't know what they furnished, but the letter there calls for some report to the directors. Did you furnish that or not?

Mr. WILSON. We did, Senator Connally.

Senator CONNALLY. You furnished the report that you made to the directors?

Mr. WILSON. We furnished the published report of the Aluminum Co. to its stockholders of December 31, 1940, and a similar report for the first quarter of 1941.

Mr. FULTON. Now specifically, do your directors have any reports other than those which were furnished to the directors as distinct from your published reports to your stockholders?

Mr. WILSON. They do not have a specific balance sheet such as this, no.

Mr. FULTON. In other words, you have no financial statements at all other than the type that were sent to the stockholders.

Mr. WILSON. Why, Mr. Fulton, I have attempted to state continually to your questioning on this, yes, there are very voluminous records other than this, but not that are consolidated into one statement of the type that would be expected to be most helpful to the committee.

Mr. FULTON. That are the type that are furnished to your directors? Do you have a monthly statement to your directors?

Mr. WILSON. I think not; no.

Mr. FULTON. Well, what kind of financial information do your directors have and when do they get it?

Mr. WILSON. At directors' meetings they are given information as to the status of the company's business and of its financial matters, but they are not a consolidated set of financial statements such as would correspond to the annual statement to stockholders.

Mr. FULTON. The annual statement to the stockholders is a consolidated statement to the stockholders of the parent company as to the subsidiaries? Do you mean by that that when you get more detailed information you get it in the form of financial statements with respect to the parent company on its several subsidiaries?

Mr. WILSON. It may be.

Mr. FULTON. Isn't it a fact that you get such information?

Mr. WILSON. I beg your pardon?

Mr. FULTON. Isn't it a fact that you do have for the directors further information? Wouldn't you get it monthly as all other large corporations try to do?

Mr. WILSON. It would be a similar statement to this one that has been furnished the committee.

Mr. FULTON. And that in so far as the more detailed statement, of course it has the details which were lacking in the statement furnished to the committee.

Mr. WILSON. Not as to the financial data.

Mr. FULTON. I assume, then, that rather than take up time, the chairman would directly send an accountant to the Aluminum Co. to look over the files that are made available to the directors.

Senator CONNALLY. The counsel has no right to assume anything; the committee will do what it pleases.

The CHAIRMAN. If the committee finds it is necessary to send an accountant, he would be allowed to see these figures, would he not?

Mr. WILSON. Of course, Senator Truman.

#### FONTANA, N. C., POWER PROJECT OF ALUMINUM CO. OF AMERICA

The CHAIRMAN. How long has the Aluminum Co. of America owned the Fontana project?

Mr. WILSON. I believe that the first properties that were involved in the Fontana project were purchased around 1913 or 1914, in that period.

The CHAIRMAN. I don't care for the exact month and date, but it has been something in the neighborhood of 30 years, hasn't it?

Mr. WILSON. I would think so.

The CHAIRMAN. Where is this located?

Mr. WILSON. I beg your pardon?

The CHAIRMAN. Where is this property located?

Mr. WILSON. In the western section of North Carolina, about fifteen miles east of the State line dividing North Carolina and Tennessee, on the little Tennessee River.

The CHAIRMAN. It is located in the same neighborhood as the T. V. A. projects.

Mr. WILSON. It is in the T. V. A. district, yes, sir.

The CHAIRMAN. Now just why hasn't the Aluminum Co. developed this project for the production of power?

Mr. WILSON. There has not been, until recently, a demand that would justify bringing into being in this district the quantity of power that would be developed by the completed Fontana project.



By "recently" I mean within the last year and a half. Furthermore, it has taken the greater part of the period during which this property has been under consideration to accumulate the individual parcels of land that are necessary before the project can be constructed, and even today all of the property which is involved has not yet been acquired.

The CHAIRMAN. Just when did the Aluminum Co. decide to develop this property itself?

Mr. WILSON. Well, it gave definite consideration and put it on its program, I would say, the latter part of last year. I do not recall the exact date.

The CHAIRMAN. Why didn't you go forward in developing it?

Mr. WILSON. The Federal Water Power Act required a declaration of intention be filed with the Federal Power Commission in the event of a construction of any hydroelectric project. Such a declaration was filed on behalf of the subsidiary owning the property, the Nantahala Power & Light Co., and prior to that filing, preliminary discussions had been had with the Federal Power Commission which led to the expectancy that the Federal Power Commission would not take jurisdiction over the property to the extent of requiring a license. However, in acting on the declaration of intention, the Federal Power Commission then decided that they should require a license, and the company felt, in view of the fact that by that time—I believe that was April of this year—we were embarked on such a large program of expansion which required such large sums of money, that we couldn't properly finance with our own funds the construction of the Fontana project when it was subject to the license provisions which involved the recapture, or the possibilities at least of recapture, by the Government at the end of the license period.

The CHAIRMAN. How long is the license period?

Mr. WILSON. There is no way to determine what the license period for any project will be until it is set by the Federal Power Commission; the limitation, as I understand it, on them being that they, under the act, are not permitted to grant a longer license period than 50 years. They may require a shorter period. If I understand the act correctly—

The CHAIRMAN (interposing). Well, just what does the recapture clause provide? Doesn't that provide that the Government shall not take the property without proper compensation?

Mr. WILSON. We have sought advice of counsel on that feature and have been informed that the act leaves a great, wide-open, undetermined field within which the Federal Power Commission may exercise jurisdiction and supervision, so that it is impossible to foretell what the provisions of recapture may be.

The CHAIRMAN. It is not customary in this country, is it, to take property without due process of law?

Mr. WILSON. No; I am sure that it is not, Senator Truman. If I may explain how it is felt this might work, not necessarily that it would—I want to make that clear—but the Federal Power Act in giving the Federal Power Commission supervision over rates, as an example, during the license period under which the plant has been constructed, might require that you set rather high rates. This would be a rather unusual situation resulting in this instance, because the

Fontana power would practically all be sold to the Aluminum Co. of America by its subsidiary, or, if owned by the Aluminum Co. of America, would be used by itself. Now, if the Federal Power Commission has the right to set rates, they might establish high rates.

The CHAIRMAN. Well, is there any likelihood of establishing a rate that would be greater than that prevailing in the T. V. A. right in the immediate neighborhood?

Mr. WILSON. I wouldn't know; I don't suppose so, but the act then provides that the earnings of the company shall determine, shall go into an amortization fund, which is one of the factors, at least, if not the determining factor as to the value at which the Government may take over the licensed project at the end of the license period.

The CHAIRMAN. You know, this committee is trying to find a way to get aluminum. We are principally interested in getting aluminum. I would be willing to buy aluminum from anybody.

Mr. WILSON. That is correct.

The CHAIRMAN. If we could get it. I don't care whether it is the Aluminum Co. of America or whether it is Reynolds or Al Capone. We would like to get aluminum for the benefit of this national-defense program. What I am trying to get at is, how far is the Aluminum Co. of America willing to go under this emergency to help this Government get aluminum?

Mr. WILSON. The Aluminum Co. feels exactly as the Senator does.

The CHAIRMAN. I sincerely hope so.

Mr. WILSON. There is no question on that score.

The CHAIRMAN. Aluminum is what we want.

Mr. WILSON. I would like to add one point, if I may, in connection with Fontana that you were speaking of.

The CHAIRMAN. Yes?

Mr. WILSON. That is that the Fontana project is located upstream from two other projects which the Aluminum Co. now has on this same river, and that if taken over at the end of the license period may actually destroy the value of the existing developments of the Aluminum Co. on this same river.

The CHAIRMAN. Aren't you unduly alarmed over this taking over?

Mr. WILSON. I would hope so, and we stand ready today, Senator—I want to make this clear if I haven't up to this moment—to build Fontana under a license if we can obtain proper financing, but I am afraid it must be Government financing under today's conditions. I want to leave no question in the minds of this committee on that point.

Senator BALL. How much will the financing amount to? How much will it cost to build the power end of the project?

Mr. WILSON. With the rising cost of this type of development, we believe now it would be forty-five to fifty million dollars.

Senator BALL. How many kilowatt-hours?

Mr. WILSON. It will produce on an average over the year something rising from 100,000 kilowatts, 100,000 to 110,000 kilowatts average over the year.

Senator BALL. It would make about 100,000 pounds of aluminum?

Mr. WILSON. One hundred million pounds of aluminum.

Senator BALL. One hundred million?

Mr. WILSON. That is correct, Senator.

Senator BALL. A year?

Mr. WILSON. That is correct, Senator.

Senator BALL. And the Aluminum Co. now owns this site and the water-power rights.

Mr. WILSON. It owns the bulk of the property which would be involved, the bulk of the riparian rights and the dam site, but not the complete property as yet.

Senator BALL. But you require this license before you could go ahead and construct the dam and the power.

Mr. WILSON. That is correct. The Federal Power Commission has ruled that we must take a license.

Senator BALL. And as I understand your statement here, you say you have offered to the O. P. M. to sell the property to T. V. A. and then construct your plant there and buy the power from T. V. A. if they want to construct it, or you will take out the license and construct it with R. F. C. money on a lease proposition, or whatever they want to make it.

Mr. WILSON. That is right, with one slight revision, that we haven't yet negotiated with T. V. A. to buy the power resulting from the construction of the project, but we would expect to be ready to do that. We have negotiated with them as to their taking the property over.

The CHAIRMAN. Are you willing to make a specific proposal on just exactly what you will do, either to the T. V. A. or the Reconstruction Finance Corporation?

Mr. WILSON. We are hoping to do it with the Reconstruction Finance Corporation and have asked the O. P. M. for their suggestions or their ideas as to how we should proceed along that line.

The CHAIRMAN. Are you willing to make a specific proposal on the subject so we can get aluminum? That is what we are interested in.

Mr. WILSON. We are, Senator.

The CHAIRMAN. I wish you would go ahead and do it. May we have it so we can go ahead and get aluminum?

Mr. WILSON. We will make such a proposal.

Senator BALL. What do you estimate your electricity would cost if you went ahead with this development yourself? Have you made estimates of it?

Mr. WILSON. Yes. When that power can all be used, depending upon the interest rate of the loan, but presumably it would be in the neighborhood of 2¾ to 3 mills, possibly 3¼ mills per kilowatt-hour.

Senator BALL. Then I presume you would be willing to contract with T. V. A. to buy that much power at that figure within that range.

Mr. WILSON. If they purchased the project.

Senator BALL. The site.

Mr. WILSON. We would.

Senator CONNALLY. Mr. Chairman, may I ask the witness a question?

The CHAIRMAN. Surely.

Senator CONNALLY. Mr. Wilson, what, if anything, can you tell us in a few words, your company has done to increase production of aluminum to meet the increased demands of the Government? How does your production compare with what it was a year ago, say?



Mr. WILSON. In the year 1939 we produced 327,000,000 pounds of aluminum, in 1940 we produced four hundred and twelve and a half million pounds of aluminum. At this moment we are producing at the rate of about 635,000,000 pounds of aluminum per year, and by this time next year we will be producing at the rate of about 730,000,000 pounds per year.

Senator CONNALLY. You estimate, then, that for the present year, if you keep up your rate that you are going now, you will produce over 600,000,000 pounds of aluminum. Is that right?

Mr. WILSON. No; we will not, Senator.

Senator CONNALLY. I thought you said you were producing now at that rate.

Mr. WILSON. We are producing now at that rate because of certain new production that has come in within the last 2 months. We were not at that rate at the start of this year.

Senator CONNALLY. Oh, I see.

Mr. WILSON. At the start of this year we were producing at the rate of about 500,000,000, a little over 500,000,000.

Senator CONNALLY. What do you figure that you will produce during this current year if you keep up your rate?

Mr. WILSON. During the year 1941 we expect to produce about 585,000,000 pounds.

Senator CONNALLY. Five hundred and eighty-five million pounds? Well, wouldn't you say that you are producing all that you can produce under the circumstances?

Mr. WILSON. We are producing all that we can produce until we are given more power. We have had specific plans that have been offered to the Government as means of increasing the production of aluminum, and they have all been dependent upon additional power being made available to us, and we have not yet gotten any of that additional power.

Senator CONNALLY. Well, have you considered the utilization or installation of steam plants to produce power?

Mr. WILSON. We have.

Senator CONNALLY. Isn't it possible in some instances to produce power by steam plants more cheaply even than water power?

Mr. WILSON. Yes; that is possible. It is rather an unusual set of circumstances under which steam power would permit aluminum to be produced more cheaply than with hydroelectric power, but we believe that we should be able to produce more aluminum at Massena, N. Y. We believe with Senator Mead that additional power made available because of the diversion of additional water at Niagara presents possibilities for more aluminum production. We believe that there is still available power in the Pacific Northwest, and we believe that under the program as laid out by the T. V. A., while there is no additional power at the moment, that there will be additional power in the T. V. A. district.

Senator CONNALLY. Let me ask you about your output now. What percentage of that output is going to governmental uses and what percent to private or civilian uses? Have any priorities been issued on aluminum?

Mr. WILSON. All aluminum shipped today is subject to priorities. The hesitancy or any hesitancy I had in answering your question, Senator Connally, arises from the fact that the Government does not

purchase direct on Government contract very much aluminum. It is purchased by contractors or subcontractors under Government contracts.

Senator CONNALLY. That is right.

Mr. WILSON. It is those contractors or subcontractors that purchase from us.

Senator CONNALLY. Well, you have a pretty good idea where it is going, because if you have priority you would know why.

Mr. WILSON. Yes. Today 90 percent, in our opinion, is now going directly or indirectly to military uses.

Senator CONNALLY. That is what I was getting at. So according to your contention the great bulk of your product is being employed in defense manufacture.

Mr. WILSON. I am sure there is no question whatsoever on that point.

Senator CONNALLY. How are your prices now as compared with 1939, say?

Mr. WILSON. Our prices are 15 percent lower than they were in 1939; that is, in 1939 the basic metal price of aluminum was 20 cents; there was a reduction of 1 cent a pound made in 1939, and two reductions, each of 1 cent a pound, additional reductions, made in 1940, so that today the price of aluminum metal is 17 cents as compared with 20 cents existing in 1939.

The CHAIRMAN. What effect has that had on your profits?

Mr. WILSON. It is a little difficult for me to answer that. Of course, it is obvious that that of itself must have reduced the profits on each pound, but in the meantime the volume of the business has increased so much that—

The CHAIRMAN (interposing). The facts are, the profits are greater than they have ever been. Isn't that true?

Mr. WILSON. In the period of 1940. I don't believe they will be in 1941.

The CHAIRMAN. How long would it take to build the plant at Fontana?

Mr. WILSON. We believe that by building the plant in two stages we can bring in a partial development of it in about 15 to 18 months, which would be about 30,000 kilowatts.

The CHAIRMAN. We have lost about a year on it now, haven't we, and we are still losing time. Don't you think it is about time to start that if we are going to get anything out of it? I am trying to get aluminum.

Mr. WILSON. Of course, there can be no question on that, Senator Truman. On the other hand, it must be financed before we can do it, and we should be permitted to proceed and we will proceed to do that.

The CHAIRMAN. I shouldn't think the Aluminum Co. would have much trouble with that phase of the thing.

Senator CONNALLY. Mr. Wilson, of course, I suppose there enters into the calculations of your company, when it comes to expanding these facilities, the question as to whether you are going to need them after the emergency is over. Is that one of the compelling reasons why you are seeking Government financing so that the Government will have it on its hands rather than the company will have it on its hands?

Mr. WILSON. It is true it would worry us. I am rather inclined to think, Senator, that that worries the man who is going to loan us the money just as much as it does us.

Senator CONNALLY. Exactly. That is what I had in mind.

Mr. WILSON. He hesitates to loan money. We are going to have to utilize, in financing the present \$200,000,000 program, to utilize possibly all the credit we have. That is the point that I am making.

Senator CONNALLY. Suppose the Government should build this plant out there and let you operate it. How about that?

Mr. WILSON. We suggested that and offered that, but the T. V. A., I believe—I do not wish to speak for them—feel that in the event that plant or hydroelectric project would be built with Government funds the T. V. A. should be the agency to do it. I think that is a logical position for them to take.

Senator CONNALLY. Build it and operate it, or what?

Mr. WILSON. Build it and operate it, I suppose.

Senator CONNALLY. Well, the operation, of course, wouldn't be of great importance except for the fact of your experience and knowledge. I say your experience and knowledge of the production of aluminum would be very valuable.

Mr. WILSON. Possibly I misunderstood your question. I thought you meant the Fontana hydroelectric development.

Senator CONNALLY. I mean any of them, any plant. Suppose the Government should build it and let you operate it.

Mr. WILSON. We have offered to do that.

Senator CONNALLY. Under license, control of prices of the product, and all that sort of thing?

Mr. WILSON. We have offered to design, build, construct, manage under such management arrangement—

Senator CONNALLY (interposing). Of course, you wouldn't be greatly interested in building or operating a plant that would be in fact highly competitive with your own company, would you?

Mr. WILSON. We believe that the future should be safeguarded in some way, that our position in the future is not going to be unduly jeopardized by what we would do on behalf of the Government today.

Senator CONNALLY. Well, right now how many shifts are you working in your plants?

Mr. WILSON. Many of our processes are continuous processes which are operated three shifts, 365 days of the year, and an extra day for leap year.

Senator CONNALLY. Of course, you run into the lack of power, I suppose, in any expansion, by increased shifts or enlarged plant; you would have the same problem as to power, would you?

Mr. WILSON. We now operate all of these plants which produce metallic aluminum; they are operated every hour out of the year.

Senator CONNALLY. That is what I am getting at.

Mr. WILSON. So that there is no possibility of increased number of shifts.

Senator CONNALLY. That is what I had in mind.

Mr. WILSON. Permitting any increase in production.

Senator CONNALLY. You are doing all you can now in the matter of shifts.

Mr. WILSON. That is right.



Senator CONNALLY. You couldn't increase production any by putting on additional shifts because you have already got them.

Mr. WILSON. That is right.

Senator MEAD. Mr. Chairman, in line with the interest I expressed in developing additional power at Niagara and Massena, and because of the favorable developments that have taken place in Niagara and will, I hope, take place in Massena, I am very anxious to be useful in this Fontana matter. I would like to know something about the status of it right now. Is it stalemated? Is nothing done about it? What is the status of it right now?

Mr. WILSON. The status right now is that it has been called to the attention of the O. P. M. that we are ready and willing to proceed with the construction of Fontana under a license from the Federal Power Commission, provided we can obtain suitable financing from the R. F. C. or the proper one of the Government financing bureaus.

Senator MEAD. Right there, is there a conflict between the proposal that you make and the counterproposal of the Federal Power Commission?

Mr. WILSON. I don't believe so.

Senator MEAD. No opposition, then, so far as you know, from the Federal Power Commission.

Mr. WILSON. We haven't yet determined that. I believe that the procedure would naturally be, Senator Mead, that when we would have reasonable assurance that the funds can be made available for that, then we would make a request upon the Federal Power Commission for a license and make application for a license, and then the terms of that proposed license would be developed and told to us, so that we could then determine whether or not there were limitations or provisions which were either unacceptable to us, though I hate to use that term—we don't expect to say no, we won't accept it, but making it unusually difficult for us, or whether the owner of the mortgage on that property through which we were obtaining our finances, said, "I cannot finance under such terms as are proposed in that license."

Senator MEAD. Well, in view of the fact that it isn't time yet for the Federal Power Commission to take definite action, has the R. F. C. made known its attitude with reference to the possible loan of the money or the financing of the project?

Mr. WILSON. They have not to my knowledge.

Senator MEAD. Then we can eliminate, for the moment, the R. F. C. and the Federal Power Commission, which leaves the problem apparently with O. P. M. in that you have expressed a desire to go right ahead. Federal Power hasn't yet been brought into the picture; R. F. C. hasn't been called upon to make the loan. Now I take it, therefore, that O. P. M. is holding this matter in abeyance because you have expressed the desire to go ahead immediately.

Mr. WILSON. Well, I think they are considering this along with other matters, but I wouldn't want to leave the impression that it is my own personal feeling that O. P. M. is the one that is holding this up. I think that we are the ones, the Aluminum Co. of America are the ones, that are the logical ones to make the next move and to go to the R. F. C. and see under what arrangements we could obtain the money.

The CHAIRMAN. I was asking you to make that specific and in writing so perhaps you can get a start.

Mr. WILSON. We hope and expect to do it. Our difficulties, gentlemen of this committee, are the number of things that we try to do in one day, we are unable to get around to all of them, and one of the reasons, without the slightest intention of disrespect, is such hearings as this. It takes time; it takes effort.

Senator CONNALLY. If we can make you get a move on you and get you to say what you are going to do, don't you think it is worth while?

Mr. WILSON. Very much so. I don't mean the slightest disrespect; I merely mean that the limitation is on time.

Senator CONNALLY. We have had the O. P. M., and we have put coals of fire on their backs; we have had the Army and Navy, and we are trying to get everybody that needs cranking up to get cranked up to go.

Mr. WILSON. I think and I hope that will be done.

The CHAIRMAN. And I don't think that is time wasted, because you have fooled around now for a year on this project, and you could have taken the same procedure in the beginning that we are urging you to take right now, and you didn't do it. If we have caused you to waste one day and can get that project started, why, I think we have done you a favor.

Mr. WILSON. I think we may have gained in the long run many days, I agree with you.

The CHAIRMAN. I hope so.

Senator BALL, do you have some more questions?

Senator BALL. Yes.

Mr. WILSON. It has just been called to my attention, Senator, that the R. F. C. will not give consideration to a definite proposition from us until they do receive approval of it from O. P. M. I was a little mistaken.

Senator MEAD. That brings me right back to where I was before you made that statement that it was your next move to go to R. F. C. Therefore, the matter is held up in O. P. M. and therefore it isn't your duty to make the next move by going to R. F. C., because R. F. C. would not be in a position to consider your proposal unless it had the approval of a Government agency.

Mr. WILSON. I think that is correct, Senator.

Senator MEAD. All right, then, that brings me to another point, and that is this: Is there a possibility of this being held up in O. P. M. because O. P. M. favored the so-called Holden plan of allowing the Army to build this Fontana power development and giving your company the authority to buy the option, to buy it if you desired after a 5-year period, which was the O. P. M. proposal and which is running counter to the provisions of the Federal Licensing Act under which the Federal Power Commission offered you the 50-year plan. Is there a conflict between those two plans that is receiving the consideration of O. P. M. that may hold this matter up?

Mr. WILSON. I don't believe so, Senator; I don't think so.

Senator MEAD. In view of the fact that it isn't your next move to go to R. F. C., and by reason of the fact that the Federal Power Commission, as you said, can't act until O. P. M. acts, then why isn't

O. P. M. acting and how can this committee be delaying your day's work by having you up here?

Mr. WILSON. I think that O. P. M. is considering that along with the other possible alternatives for expanded aluminum production, and I doubt if it is any different procedures of undertaking the Fontana development that is holding it up. I think it is merely that is one of several alternatives in connection with the program that is receiving their consideration.

Senator MEAD. Don't you see it is very necessary for us to get to the bottom of this and get this Fontana project started?

Mr. WILSON. Entirely so.

Senator MEAD. You are not holding it up, according to you evidence. R. F. C. isn't holding it up, because they can't make a loan until some proper Government agency rightfully approves it. Federal Power Commission isn't in on it yet until it receives the approval of O. P. M. Now it is held up in O. P. M. according to the testimony we have deduced here this morning. O. P. M. told us that they had a plan, that plan ran counter to the plan that was recommended by the Federal Power Commission, and one of your officers told us the plan that was proposed by O. P. M. was unfair insofar as the Government was concerned. Now what this committee wants to do is to get this project started so you can go down there and produce aluminum, and it looks to me as though O. P. M. is the culprit in this instance if all this testimony is correct. I hate to believe that because they claim that they are as vitally concerned as you and me and all the rest of us.

Mr. WILSON. They are. Our contacts with O. P. M. have given us a very high opinion of the individuals there.

Senator MEAD. But I can't account for this continuing delay. There must be something wrong some place, or Fontana would be started. We had O. P. M.'s representatives up here and they impressed our committee, except in this instance. We are very eager to get the Fontana project started and started immediately. Now I can't see, for the life of me, what is holding it up.

Mr. WILSON. I can't answer that, Senator.

Senator CONNALLY. Mr. Wilson, who was this man who made the estimate sometime ago—it seems to me like he was in the O. P. M.—as to the available supply of aluminum and then later on didn't he back up and say that he was mistaken, and so on? Who was that?

Mr. FULTON. Folsom and Holden made the statement, but it was Mr. Batt who stated that under their May surveys, considering additional aluminum requirements, they would need some hundreds of millions of pounds more.

Senator CONNALLY. Wasn't there a man named Folsom who made a statement in which he said that they had plenty of aluminum, and later on had to back up and take it all back?

Mr. WILSON. I wonder if the Senator is referring to Mr. Stettinius' release.

Mr. FULTON. I think, Senator Connally, that Mr. Folsom was in the O. P. M. and was in charge of it at the time. The Stettinius release would, of course, be based on his figures.

Senator CONNALLY. Probably so.



Mr. FULTON. Mr. Batt's calculations were at a later date and as of that later date be concluded that the earlier figures were not correct, but there had been additions to the program.

Senator CONNALLY. That is what I am getting at. This man Folsom, as I remember, is out now. He quit the O. P. M.

Mr. FULTON. That is correct.

Senator CONNALLY. Didn't he make an estimate and Stettinius' report is probably based on that, and he said that they had all the aluminum they needed, or words to that effect?

Mr. WILSON. And Mr. Folsom was in charge of the Aluminum and Magnesium Section within the O. P. M.

Senator CONNALLY. Getting that information upon which he based those estimates, had he contacted your company? Was he familiar with the facts?

Mr. WILSON. He was familiar with the facts as to production?

Senator CONNALLY. That is what I am talking about.

Mr. WILSON. Which he got from us.

Senator CONNALLY. Wasn't he familiar with respect to stocks, if you had any stocks on hand, and all that?

Mr. WILSON. He was.

Senator CONNALLY. How do you account for his making such a wild guess? I don't care for you to reflect on him. I am not trying to do that.

Mr. WILSON. I wouldn't want to.

Senator CONNALLY. I don't think it is fair to bring one witness up here and make him comment on some other man's boneheadedness or anything of that kind, but I do think that I would like to know just how far he went, what information you gave him, and how much fact he had in mind to make a wild guess like that and then 2 months later have somebody show that he didn't know anything about what he was talking about.

Mr. WILSON. We believe that Mr. Folsom was a very competent individual and he obtained from us figures as to our production, and, as you have stated, stocks, and aluminum available to us by purchase to import in the United States, but insofar as the situation was not properly forecast, it was because of there being larger demands which have grown up for aluminum than were anticipated at the time that any such report was made. Those demands are the demands of the aircraft people, and the other military uses as well as demands from the civilian uses which resulted from a hysterical buying—part of it from hysterical buying.

Senator CONNALLY. The fear that the price would be enhanced or fear of priorities?

Mr. WILSON. I question, in this case, whether it was so much fear of an increased price as it was of an inability to obtain materials.

Senator CONNALLY. Do you know who is in charge of it over in O. P. M.? Who is in charge now of the aluminum section?

Mr. WILSON. Mr. Bunker.

Senator CONNALLY. Who?

Mr. WILSON. A Mr. Bunker.<sup>1</sup>

Senator CONNALLY. Bunker?

Mr. WILSON. He has recently been put, we understand, in charge of the Aluminum Section.

<sup>1</sup> Arthur H. Bunker.

Senator CONNALLY. Who was he? What did he do before? Was he an aluminum man?

Mr. WILSON. No; he was not. He was a man from New York who, I think, has had industrial experience, but as I understand it, recently has been with the Lehman interests, the Lehman Corporation.

Senator CONNALLY. Governor Lehman's banking corporation concern?

Mr. WILSON. I believe so; yes.

Senator CONNALLY. So he is in charge of aluminum?

Mr. WILSON. That is what we have been told.

Senator CONNALLY. Well, he is a man from whom you could get money to build this plant?

Mr. WILSON. It works both ways.

Senator BALL. Mr. Wilson, when did the program to develop this Fontana project first originate; first come to your attention? About a year ago?

Mr. WILSON. October 1, 1940, less than a year ago.

Senator BALL. Where did the first suggestion come from, you or O. P. M.?

Mr. WILSON. Oh, from us to O. P. M.

Senator BALL. They were looking for more aluminum, and you suggested this possibility?

Mr. WILSON. Yes, indeed; that is correct.

Senator BALL. And did you at that time canvass these possibilities that you developed at all, yourselves, getting the license from the Federal Power Commission, or the possibility that you get a license and finance it through R. F. C., or, the third one, that you sell the site to the T. V. A. and let them develop it?

Mr. WILSON. No; not at that time, Senator Ball, because at that time we had had some preliminary talks with the Federal Power Commission which led us to believe they did not require a license, so that we anticipated doing this ourselves with our own money. I mean it wasn't necessary to consider any other alternatives.

Senator BALL. When did you find that you would require a license?

Mr. WILSON. November 5, 1940.

Senator BALL. And then you put forward these two alternatives?

Mr. WILSON. No; we considered for some time the desirability of taking an appeal from the Federal Power Commission's ruling in this matter, and then there was pending at that time in the Supreme Court a case known as the *New River case*, which it was felt might clarify this point.

The CHAIRMAN. That is, it did clarify it, didn't it?

Mr. WILSON. I think the Federal Power Commission feels that it did.

Senator BALL. When did you make the suggestion, then, that you either finance through R. F. C. or sell this property to T. V. A.?

Mr. WILSON. That has been worked on off and on since that time, but without much activity until the last month.

Senator BALL. But the suggestion was first made to O. P. M. when?

Mr. WILSON. It was either January or February.

Senator BALL. January or February, but there had been no activity on it at all until the last months?

Mr. WILSON. Oh, no; the matter has been under constant consideration in an attempt to develop any one of these alternatives since that time.

Senator BALL. It seems to me that there are four agencies, besides yourselves, concerned in working out a solution to this thing, and you say that the one thing holding it up is considering alternative sources of supply. It seems to me a little ridiculous because from everything we have heard, if they develop every possible source, they will still be below the mark.

Mr. WILSON. I think you are absolutely correct, Senator.

Senator BALL. But it seems to me that there are four agencies and the Aluminum Co. concerned in this particular project: The O. P. M., the T. V. A., the R. F. C., and the Power Commission. Have those four groups ever sat down with officials of your company and tried to work out an answer?

Mr. WILSON. We have sat down with all of them individually except the R. F. C., and in canvassing the R. F. C., they stated that there was no use seeing them until we got approval from O. P. M.

Senator BALL. Doesn't it make sense that the five agencies and companies directly concerned sit down and try to find an answer? Isn't that the way you would do it if you were trying to get some action on this?

Mr. WILSON. Indeed, that is correct.

Senator BALL. I think it is about time somebody did it.

Senator CONNALLY. May I ask Mr. Wilson another question? What about this ore they call alunite? Do you know anything about this ore called alunite?

Mr. WILSON. Somewhat. I wouldn't claim to be an expert on it, Senator Connally. I heard Secretary Ickes' testimony yesterday. Alunite is a naturally occurring mineral that contains potash, alumina, and sulfates; and sulfuric acid is one of the resulting products. We have done a great deal of work trying to determine the possibility of alunite over many years' time, and there is no question but that technically it is feasible to obtain alumina from alunite.

Senator CONNALLY. At a reasonable cost?

Mr. WILSON. We have never felt that the process had yet been so developed that it could be done economically or that a satisfactory quality of the alumina, which is the ore to be used for making aluminum, would be available from the process. One of the attractive features of the alunite as a raw material for aluminum is the fact that potash is another product, and under ordinary conditions the potash becomes the major product and the alumina a by-product, so it depends a good deal on the potash market as to whether it is a successful commercial venture.

Senator CONNALLY. Are you a technical man or merely a business executive?

Mr. WILSON. I was educated as an engineer at Massachusetts Institute of Technology.

Senator CONNALLY. But your duties now are executive; are they not?

Mr. WILSON. That is correct.

Senator CONNALLY. You are vice president?

Mr. WILSON. Vice president of the Aluminum Co. of America.



Senator CONNALLY. What are your functions as vice president? Do you have charge of operation of the plants or just financing the company, or what is your particular function? These big corporations have several vice presidents, usually—one vice president in charge of this, and another vice president in charge of that, and another vice president in charge of something else. Now, what are your functions?

Mr. WILSON. I am vice president in charge of operations.

Senator CONNALLY. Operation. You are the man that is responsible for the production of the aluminum?

Mr. WILSON. That is correct.

Senator CONNALLY. And you have, as such, direct control of these various subsidiaries over the country?

Mr. WILSON. If they are operating subsidiaries within the production field, yes, sir.

Senator CONNALLY. You have charge of those?

Mr. WILSON. Yes, sir.

Senator CONNALLY. Do you figure out and allocate to each one of those plants how much aluminum they should produce per month or per year, or do you sit down and figure out, "Well, we have got so much on hand, and the consumers probably will consume so much, and therefore we ought to produce so much. We will allocate that around sort of on a quota basis."

Mr. WILSON. There are exceptional times when that has been done, but speaking, for instance, now there is no allocation except keeping the prod under everybody to make every pound that they can.

Senator CONNALLY. That is what I am getting at. I was just getting at whether you are prodding them.

Mr. WILSON. We are pushing for every pound we can make. Under ordinary conditions we also keep our plants operating as nearly as we can at practically full operations, and build up inventories—stock up the aluminum that we produce against the time when, because of low water or whatever it may be, that a plant has to shut down. We have had as high as 300,000,000 pounds of aluminum in stock. At the end of 1938—I haven't that figure in front of me now.

The CHAIRMAN. I think you said 297,000,000 in your statement.

Mr. WILSON. Yes; 297,000,000 pounds on hand at the end of 1938.

Senator CONNALLY. Of course, all of us can understand that a concern like yours, which is dominant in its field, is not interested in producing a great deal more of its product than would be consumed, for which there is demand, because you don't want, naturally, to glut the market. I am speaking now of normal, ordinary times. And yet, on account of the factors which you have mentioned, I suppose it is desirable that you accumulate certain stocks so as to have a backlog, as it were, against higher production costs, or a stimulated demand on account of some situation, or lack of water, as you suggested, in these power plants. But those considerations, if any, ought not to be given much weight now. What we want is to turn everything loose, to get more aluminum, and I assume from your statement that your company is doing that. Is that true?

Mr. WILSON. We are pushing for every pound of aluminum that can be made under any and all circumstances, regardless of economies or anything of the kind. Today we are paying for power to keep cer-

tain of our plants operating, under the drought conditions in the Southeast, as much for power, so that for some of the aluminum we are producing now, the power cost alone is practically as much as we get for that pound of aluminum produced from it when we sell it.

Senator CONNALLY. That is highly commendable if you do that.

Mr. WILSON. We are saving, stinting in no way in our effort to maintain this production at its maximum point. I welcome an opportunity to put on the record that we have had magnificent cooperation in that effort from the T. V. A., and from the other public-power companies throughout the Southeast, in giving us this power, that under these extreme drought conditions have still permitted us to keep our production right up to every pound of capacity that is there. It has been magnificent—this cooperation we have gotten—but we have footed the bills.

The CHAIRMAN. Do you have another question, Mr. Fulton?

#### EARNINGS AND COSTS OF ALUMINUM CO. OF AMERICA

Mr. FULTON. With respect to that last question, I think you are getting 17 cents a pound for ingot. Do you mean that you are paying 1.7 per kilowatt-hour, and if so, where are you paying that price?

Mr. WILSON. I think that we have paid—the highest price specifically that I have seen for power or known for power coming in is 12½ mills. That is 1¼ cents. But I believe that more expensive power than that is flowing into us today. We do not know, when this power is delivered to us, how much we are going to be billed for it.

Mr. FULTON. Was your statement correct when you told Senator Connally that you were receiving less money, 17 cents a pound for ingot, than you were paying for the power?

Mr. WILSON. I believe there may be power going into—on top of this we have losses—on top of this we have additional expense for this power before we get it into aluminum, Mr. Fulton.

Mr. FULTON. I mean do you know of any case where you are paying 1.7 per kilowatt?

Mr. WILSON. No; I do not.

Mr. FULTON. And the highest that you know is 1.25. Is that right?

Mr. WILSON. The highest specific case, but I was asked whether we would approve some higher cost power, and I said we would.

Mr. FULTON. But I thought you told him you were.

Mr. WILSON. Whether that power is flowing into us now, I don't know. I suspect it is. I believe it probably is.

Mr. FULTON. And where would you expect to find this power that is flowing into you at a cost of 1.7 per kilowatt? What project is that?

Mr. WILSON. I don't understand the question.

Mr. FULTON. I mean just what project is it that you have in mind where you are buying power that runs so many times more than your average power cost?

Mr. WILSON. I wouldn't know whether it is power through the T. V. A. or whether it is second-hand to them, through, let's say, the Alabama Power or Georgia Power.

Mr. FULTON. Would you—

Senator CONNALLY (interposing). Go ahead. Let him answer one question before you ask him another.

Mr. WILSON. I believe that they are picking up from their systems, asking small mills that ordinarily have their plants shut down, to put those small plants into operation, to put that electric power and energy into the system, and whatever the cost of that is, that cost is borne by the Aluminum Co. of America. It is billed to us at the end of the month.

Mr. FULTON. Can you tell me any company at all that you would expect to find that you were paying a cent and a half or more?

Mr. WILSON. No; I can't tell you any company that we are getting it from because we are not the prime party that makes that arrangement.

Mr. FULTON. Well, do you know that there is such a company that is selling this power to you at a cent and a half a kilowatt?

Mr. WILSON. I do not; no.

Mr. FULTON. So when you answered Senator Connally you were not speaking of any fact that you had any knowledge of?

Mr. WILSON. I am speaking of the fact that we have authorized power up to that amount, up to that cost, to come into us if that is the only power than can be gotten, and I believe that there is probably such power coming into the system.

Mr. FULTON. Now, with respect to this question of Fontana—

Senator CONNALLY (interposing). Before you get off into that, I want to ask him another question. You said that some company you had been paying 12½ mills, didn't you?

Mr. WILSON. Yes, sir.

Senator CONNALLY. That would be a cent and a quarter.

Mr. WILSON. That is correct, and that would be over 12 cents cost per pound of aluminum.

Senator CONNALLY. I mean if you could reflect the cost of the power into a pound of aluminum, a cent and a quarter per kilowatt would mean 12½ cents a pound for the aluminum. Is that right?

Mr. WILSON. The normal power cost in that case would be around 3 cents.

Mr. FULTON. And in fact the figures you have given me are less than 3 cents as being your average cost of power; 2.87 is the amount.

Mr. WILSON. I didn't have that figure quite in mind, but that is it.

Mr. FULTON. Isn't that the average, including all of the high-cost power?

Mr. WILSON. That would be the average for the first 3 or 4 months—whatever period that covers.

Mr. FULTON. With respect to Fontana you said that you had told the O. P. M. that you would do various different things which are listed on page 4 of your statement. Can you tell me when you told the O. P. M. that, and I am referring specifically to the statement on page 4 of your prepared statement.

Mr. WILSON. Early or the middle of February.

Mr. FULTON. So that since that time they have known that you have been ready to do any one of those alternatives listed there?

Mr. WILSON. That is correct.

Mr. FULTON. And what was the price that you suggested as being the selling price of the project?



Mr. WILSON. The price has not been—I mean that would be a subject of negotiation, Mr. Fulton. That price hasn't been named on it.

Mr. FULTON. And to date, at any rate, you haven't determined a price at which you will sell?

Mr. WILSON. That is correct.

Mr. FULTON. And with respect to the financing, I note that up until this year there was no long-term debt at all of the Aluminum Co. Is that correct? And I believe your statement now shows something like 29 million.

Mr. WILSON. Well, I am not sure what you call long term. I think there is on there, Mr. Fulton—

Mr. FULTON (interposing). At present, in this year, there is a 24-million item, but I noted that you had in your other statement, yes, 24 million.

Mr. WILSON. Yes; I didn't understand.

Mr. FULTON. Have you asked any banking firm to issue bonds for you and obtained a refusal?

Mr. WILSON. We have given very serious consideration to the matter of financing. The matter of financing in our case is very seriously complicated by the antitrust suit which is pending in the district courts of New York, under which bankers take the position that until the decision is rendered in that case, they cannot be just too sure of what they are financing.

Mr. FULTON. Then, specifically, the answer is "Yes"; that you have asked bankers to undertake financing which they have refused.

Mr. WILSON. That is correct, and we have taken it up with them.

Mr. FULTON. I note in your statement that you gave me, even after deducting all Federal income taxes, your earnings for the first 3 months of this year were at the rate of \$48,000,000 a year, and if that is so, do you mean that bankers won't loan you more than 6 months' earnings?

Mr. WILSON. I don't recall that earning figure on that. How much did you say? Did you say at the rate of \$48,000,000?

Mr. FULTON. The first 3 months' figure, after you had excluded all taxes, including income taxes, was listed by you as \$11,926,698.46 for 3 months. Multiplying that by 4, it would be approximately \$48,000,000.

Mr. WILSON. I didn't realize—I hadn't performed that multiplication—I hadn't realized whether that figure was correct.

Mr. FULTON. Then, am I correct in assuming that it is your testimony that bankers have refused to loan you more than 6 months' earnings?

Mr. WILSON. That is correct, on any long-term basis.

Mr. FULTON. And that the most that your company has been able to borrow is \$24,000,000?

Mr. WILSON. Oh, no. Not at all, not at all. If you will look at the statement right in front of you, you will see additional loans. You were speaking of long-term loans.

Mr. FULTON. That is correct. That is what I mean, that nobody is willing to undertake any long-term loans.

Mr. WILSON. That is correct.

Mr. FULTON. And that despite your application to bankers to do so?

Mr. WILSON. That is correct.

Mr. FULTON. And have you approached the O. P. M. and others with a suggestion that they assist you in obtaining such long-term financing?

Mr. WILSON. No; we have not—that is, we haven't specified long-term. We have pointed out to the O. P. M. that any further expansion on our part in connection with this program is going to be necessarily limited as to our ability to finance as compared with what has taken place up until now.

The CHAIRMAN. Where did the \$200,000,000 come from that you used for expansion purposes?

Mr. WILSON. This \$200,000,000 was spent over several years' time.

The CHAIRMAN. It came out of profits?

Mr. WILSON. It came out of profits, out of depreciation reserves, out of the 5-year amortization allowance, and out of short-term bank loans, current bank loans.

Mr. FULTON. What was the profit in 1938 before deducting Federal taxes?

Mr. WILSON. I don't have the figures before taxes.

Mr. FULTON. Or after Federal tax?

Mr. WILSON. Fifteen and a half million dollars.

Mr. FULTON. So that your profits at this rate are something more than three times as much as they were in the 1938 year, even after paying the increased Federal taxes?

Mr. WILSON. That accrual in that case is on today's rate of Federal taxes. Whether they will be increased or not—I am not sure I understood your question when you said "increased."

Mr. FULTON. What was your income in those 3 months before Federal taxes?

Mr. WILSON. I don't know. I haven't the figures.

Mr. FULTON. That was one of the reasons why I thought that this statement wasn't a very complete statement and that certainly the officers must have something more than that.

Mr. WILSON. I don't have that.

Mr. FULTON. As you very correctly point out, it is an assumption that is very much hypothetical that your taxes will be the same in 1941 as they were 1940. Consequently, I would assume—

Senator CONNALLY (interposing). I can say they will be more.

Mr. WILSON. I think I could, too, Senator. We must expect higher taxes.

Mr. FULTON. If they were the same as 1940, your income, after paying all income taxes, would be more than three times as great as it was in 1938.

Mr. WILSON. Thirty-eight, of course, was a relatively low earning year.

Mr. FULTON. Was there some addition to that answer?

Now, with respect to those costs of producing aluminum, are you familiar with these costs that were furnished the committee yesterday?

Mr. WILSON. I didn't compile those costs, but I think I know what enters into them.

Mr. FULTON. Can you, in your testimony, tell us whether they are accurate?

Mr. WILSON. I am confident they are accurate.

Mr. FULTON. One thing that struck me is the fact that your bauxite constitutes less than one-third of the cost of material; in fact, less than one-fourth the cost of the material going into the production of alumina. Is that true?

Mr. WILSON. I think that is—yes.

Mr. FULTON. Well, what are the other materials, other than bauxite, which constitute that three-fourths of the total cost of materials going into alumina?

Mr. WILSON. That would include the transportation of the bauxite from the bauxite mines to the concentrating plant where it was concentrated to alumina; and another item that would be in there, another major item, would be the dollar-a-ton duty on South American bauxite brought into America.

Mr. FULTON. So that instead of being material, it is largely transportation and duty?

Mr. WILSON. Well, as I understand it, although as I say, I didn't compile these, these were compiled as a result of your request as to how the cost would be divided, so that those items, transportation and duty, aren't labor and aren't overhead, so they had to go into material.

Mr. FULTON. It isn't material either; is it?

Senator CONNALLY. It is the cost of the material.

Mr. WILSON. Cost of the material; yes.

Mr. FULTON. In that sense, I suppose that the labor on the bauxite would be a cost of material in the alumina, too, would it not?

Mr. WILSON. Certainly, certainly.

Mr. FULTON. But you put that in separately, as a separate item. When you come to aluminum, I notice that the cost of material in aluminum is listed in here as being greater than the total of the cost of the material in the alumina and the cost of the material in the bauxite. Is that due to some other material, or is that again a case of putting transportation into the material?

Mr. WILSON. It would be transportation, but in addition there are substantial other materials, such as carbon electrodes, and so forth, that enter the process at that stage as material costs.

Mr. FULTON. I see. I noted that when I add all the figures for overhead together and then take the production, which you refer to as \$600,000,000 annually, we would get an overhead figure for pig ingot alone, excluding any of your overhead that would be allocated to any of the other business, of \$18,000,000, and that seems rather high. Could you explain where you get the \$18,000,000 overhead for pig ingot?

Mr. WILSON. I would be a little surprised if it was \$18,000,000, but—

Mr. FULTON (interposing). Well, I get that.

Mr. WILSON. But items that would enter that overhead would be depreciation, amortization, taxes, property taxes, and plant superintendence, and that type of overhead at each one of these plants, as well as the general expenses of general administrative overhead of the companies as a whole.

Mr. FULTON. And would you be allocating there any part of the overhead that would relate to the further manufacture of ingot?

Mr. WILSON. No.



Mr. FULTON. This is only part of your overhead?

Mr. WILSON. That would be correct, only that portion of the overhead applicable to these operations.

Mr. FULTON. And the way I got that was by adding your overhead figures, and they come to 0.0304, or more than 3 cents a pound. If you have a 600,000,000-pound production, that would be approximately something in excess of \$18,000,000, to which, of course, you would have to add your further overhead for your further production, reaching a tremendous overhead figure.

Mr. WILSON. What did you say the total was, Mr. Fulton, 0.0304?

Mr. FULTON. 0.0304; yes.

Mr. WILSON. This report covers the first 4 months of this year. Production wasn't at the rate of 600,000,000 pounds a year in those first 4 months.

Mr. FULTON. And it was then, I believe you told Senator Connally, at the rate of what a pound—four hundred fifty, five hundred million?

Mr. WILSON. About 500,000,000, I think I told him.

Mr. FULTON. So that would be about a \$15,000,000 overhead figure. It is those reasons that led me to believe that these figures would require further examination in order to be very meaningful to us, because looking at your total reserves for depreciation and depletion, they wouldn't run to anywhere near that figure. Of course, you add in there taxes as an additional overhead, and then I noted that you charged here approximately \$12 a ton for the process of converting pig to ingot, which is simply a smelting process, isn't it?

Mr. WILSON. I am not sure what you would refer to as a smelting process. We would call it a melting process.

Mr. FULTON. Does it constitute \$12 a ton to melt a ton of aluminum?

Mr. WILSON. Yes; we think we are very fortunate to have gotten the cost down to that. It used to be double that.

Mr. FULTON. And then I note you say here, "The foregoing figures do not include interest on capital employed." First, do they include any interest on the loans that you have had?

Mr. WILSON. They do not; no.

Mr. FULTON. Not in the overhead?

Mr. WILSON. No.

Mr. FULTON. And have you computed how much that interest would be?

Mr. WILSON. I have not; no.

Mr. FULTON. Based on 500,000,000, it would be a very small fraction of 1 cent.

Mr. WILSON. I think you are undoubtedly correct.

Mr. FULTON. When you say here it doesn't include the use of plant facilities, what do you mean by that?

Mr. WILSON. That item would include, if we have two manufacturers, one of them A and the other one B, and both doing the same operations; A owns his plant, he has it paid for, owns it outright, no mortgage, no borrowed money; B leases his plant and pays \$10,000 a month rental. When you come to compare the costs of A and B, A has no item in his cost for use of plant facilities or interest on capital employed, whereas B very properly has in his

cost \$10,000 a month rental charge. Now, how are you going to compare A's and B's companies? You must have comparable items. And all we have pointed out in here was that we had included in these costs no such item.

Mr. FULTON. Do you mean you didn't include anything for plant facilities at all?

Mr. WILSON. No.

Mr. FULTON. Because, as a matter of fact, you included millions of dollars of depreciation and obsolescence, normal depreciation, but that doesn't provide you any return on your money. The thing we were trying to do was to find out how much aluminum cost you so that you could find out how much your profits were, which in turn would tell you what your return on your investment is. What is the investment that has been put into the Aluminum Co., other than investment from dividends and earnings?

Mr. WILSON. You mean——

Mr. FULTON (interposing). From the beginning of the company to date, what is the amount of this capital that you want to receive a return on?

Mr. WILSON. It is the equity shown on the balance sheet, isn't it, Mr. Fulton?

Mr. FULTON. The equity includes the money that you have made in profits through the operations through the years. What I was talking about is how much capital has actually been contributed to the enterprise.

Mr. WILSON. I don't know.

Mr. FULTON. Other than earnings?

Mr. WILSON. I can't give you that figure, but I wonder what that has to do with it.

The CHAIRMAN. That is all, Mr. Wilson.

Mr. E. K. Davis. Do you swear to tell the truth, the whole truth, and nothing but the truth before this committee?

Mr. DAVIS. I do.

### TESTIMONY OF EDWARD K. DAVIS, PRESIDENT, ALUMINIUM, LTD., MONTREAL, CANADA

The CHAIRMAN. Will you give the reporter your name and connections, Mr. Davis, please?

Mr. DAVIS. My name is Edward K. Davis. I am president of the Aluminium, Ltd., Montreal, Canada.

The CHAIRMAN. You are the Aluminum Co. of Canada?

Mr. DAVIS. The Aluminum Co. of Canada, Ltd., is an operating company and a subsidiary of the company which I have just mentioned.

#### ALUMINUM PRODUCTION IN CANADA AND OTHER FOREIGN COUNTRIES

The CHAIRMAN. I see. How much aluminum is Canada producing?

Mr. DAVIS. The current output of aluminum in Canada is around 200,000 tons a year, or, in terms which I think are used in this hearing, a little over 400,000,000 pounds.

The CHAIRMAN. Four hundred million pounds a year. Is there a surplus of Canadian aluminum?

Mr. DAVIS. No, sir.

The CHAIRMAN. Is there a potential surplus? Is there a possibility of a surplus?

Mr. DAVIS. There is no possibility of a surplus that I foresee upon the basis of existing plant facilities.

The CHAIRMAN. Is there any prospect of an increase in plant facilities in Canada?

Mr. DAVIS. The plant facilities for making aluminum have, since 1936, been progressively increased, and very extensively. The earliest—let me put it more clearly this way: Taking 1936 as a good year for comparison, the production in Canada from that date to the beginning of the war, September of 1939, increased from around 40,000 tons to around 90,000 tons, and due to the military requirements, particularly, of Britain since that date, they have been increased to the figure which I gave you a few minutes ago, about 200,000 tons. Those successive increases bring the companies that are in our group to a sort of critical point beyond which the arrangements for increased production involve also the development of hydroelectric power.

The CHAIRMAN. Is there a surplus of hydroelectric power in Canada?

Mr. DAVIS. I understand not.

The CHAIRMAN. Is there a prospect of an increase in the present hydroelectric power in Canada?

Mr. DAVIS. Our companies have already, since about 6 or 8 months ago, taken steps on our own initiative and at our own expense to make the preliminary arrangements for the further development of one of the principal streams of the Province of Quebec, and that is a project which is under way.

The CHAIRMAN. Well, how is it you pronounce the name?

Mr. DAVIS. We follow the English way of spelling it and pronouncing it—aluminium.

The CHAIRMAN. Well, is the Aluminum Co. of Canada owned by the same people who own the Aluminum Co. of America?

Mr. DAVIS. To avoid any possible misunderstanding on your part, the Aluminum Co. of Canada, which is the operating company I mentioned, is wholly owned by Aluminium Ltd., and Aluminium, Ltd., is owned by the public. Some of the owners of Aluminium, Ltd. stock are, so far as I know, also interested in other aluminum companies.

The CHAIRMAN. I have been informed that 80 percent of the Aluminum Co. of Canada is owned by the same people who own the Aluminum Co. of America. Is that true or is it not?

Mr. DAVIS. I don't know, Senator Truman.

The CHAIRMAN. The reason I am interested in it, I was also informed that the two companies were separated so that the agreements with foreign governments as to the amount of aluminum that would be manufactured by each of them would be made by the Aluminum Co. of Canada, and the Aluminum Co. of America would not be liable for the antitrust laws of the United States. I just wonder if that is true.

Mr. DAVIS. You were entirely misinformed, and it is untrue.



The CHAIRMAN. It is a fact, however, that the manufacture of aluminum in the world has been confined principally to the various countries, and there has not been much exchange in the form of exports and imports of aluminum among the various countries. Isn't that true? Has the Aluminum Co. of Canada exported very much aluminum to the United States except in this emergency?

Mr. DAVIS. The Aluminum Co. of Canada has exported much the largest part of its product to overseas countries, that is, European countries, and relatively small part to the United States, so far.

The CHAIRMAN. And the Aluminum Co. of America were the purchasers of most of that aluminum, were they not?

Mr. DAVIS. That is correct.

The CHAIRMAN. What I am principally interested in is getting aluminum for the United States at the present time. Is there any prospect of a further increase of your exports to this country?

Mr. DAVIS. Yes, sir.

The CHAIRMAN. On how large a basis?

Mr. DAVIS. I assume, if I may ask a question—it isn't my duty to ask—

The CHAIRMAN (interposing). Proceed.

Mr. DAVIS. I assume that there is no objection on the American side for stating what offers of contract have been made for the United States.

The CHAIRMAN. Go right ahead. I wouldn't ask you the question if I didn't want you to answer.

Mr. DAVIS. I am brought up in perhaps a more suspicious attitude, where figures relating to armament are not put on the public record. Your country, the United States, has in fact quite recently bought from us a substantial quantity of aluminum.

The CHAIRMAN. And will be allowed to buy further from you, is that correct, by your government?

Mr. DAVIS. More than that, I will say, we hope you will.

The CHAIRMAN. Have you any questions, Mr. Fulton?

Mr. FULTON. You refer to "your country." Are you a subject of Great Britain, Mr. Davis?

Mr. DAVIS. No, sir. I am an American citizen, but when I referred to our country, I referred to the company by which I am employed.

Mr. FULTON. I see. Would you tell us something of the arrangements that you did make with respect to any agreements which might in any way have affected the quantities and the prices of aluminum? Just tell us in your own words.

Mr. DAVIS. May I ask on what occasion? You say what agreements.

Mr. FULTON. I would rather assume that you would know the occasions. I mean in your own words tell us what agreements, if any, to your knowledge have been made by anyone which would have the effect of limiting the quantities of aluminum or the prices of aluminum.

Mr. DAVIS. I think I understand you. There are no agreements within my knowledge having the effect of limiting the quantity or price of aluminum available to the United States.

Mr. FULTON. When you say there are none, would you also say there were none?

Mr. DAVIS. Well, I haven't finished, but I think I can answer the question that you just put in. Yes, I say there were none. If I may go on—

Mr. FULTON (interposing). Certainly.

The CHAIRMAN. Proceed.

Mr. DAVIS. The first statement wouldn't perhaps be entirely clear without the following. My companies, being foreign in the United States and permitted, I think, to act in conformity with foreign customs, did, about 8 or 10 years ago, assist or participate in the formation of a company in Switzerland, of which you may correctly say that one of the effects—although one of several—was to keep the output of aluminum by the participants in that company all non-United States participants, within limits that could be sold during the extreme depression, which, you no doubt recall as well as I do, certainly, ran from 1931 on through 1936 or later.

Mr. FULTON. When was that agreement abrogated?

Mr. DAVIS. The agreement in its original form—may I go a little further back and say that the company which I referred to has not been dissolved. The agreement which you, I think, allude to was substantially altered, I might say practically abrogated, in 1936.

Mr. FULTON. And is the company that you refer to in Switzerland still operating in any way?

Mr. DAVIS. No, sir; it is not operating.

Mr. FULTON. I mean is it defunct?

Mr. DAVIS. It is in a state of at least suspended animation, and it is in charge of certain trustees or directors. There are directors who are conserving the assets of the company for the time being.

Mr. FULTON. What, if anything, does it do today?

Mr. DAVIS. Nothing, except to conserve its assets.

Mr. FULTON. And in addition to Aluminium, Ltd., who were the other joint adventurers in the enterprise?

Mr. DAVIS. They were the British Aluminium Co., the leading French producer, called L'Aluminium Français, two German companies acting as a unit and generally referred to as the Vaw Cos., and the leading producer of aluminum in Switzerland, usually called for short, the Neuhausen Co., the Aluminium Industrie Aktiengesellschaft.

Mr. FULTON. And in addition to those companies, was there any other producer of aluminum of any size in the world except the Aluminum Co. of America?

Mr. DAVIS. Yes, sir.

Mr. FULTON. And what were the production amounts, so far as you know, of the other producers?

Mr. DAVIS. It is not within my present knowledge, at least, the amount of other producers, but there was substantial production in Italy, also in Russia.

Mr. FULTON. And Japan?

Mr. DAVIS. And in Japan.

Mr. FULTON. And with the exception of those, these companies constituted the world producers of size of aluminum. Is that correct?

Mr. DAVIS. With the exception of them and the Aluminum Co. of America.

Mr. FULTON. Now, you said that your company felt that it was not in any way restricted by any American laws with respect to the antitrust laws, that it was a non-American company. Is that correct?

Mr. DAVIS. It may be correct, but it is not precisely the way in which I put it. If I may put it in an amateur's language, what I intended to say was that in our business methods and arrangements, we considered our respective companies as operating under the laws of these various foreign countries, but I will add that insofar as everyone is concerned, there was no thought or intent to abrogate any United States laws.

Mr. FULTON. And with respect to the United States laws, you considered that you would not be abrogating because you were not operating under them, being a foreign company operating in foreign territory?

Mr. DAVIS. I think that is substantially correct, sir.

Mr. FULTON. Now, with respect to—

Senator CONNALLY (interposing). Mr. Chairman, I have got to go in a minute. I want to ask him a question before I go.

The CHAIRMAN. Proceed, Tom.

Senator CONNALLY. You say you are producing now about 400,000,000 pounds?

Mr. DAVIS. Yes, sir.

Senator CONNALLY. When did you begin to produce that much?

Mr. DAVIS. I think you were out of the room when I sketched out rather briefly the progressive increases, but to recite them—

Senator CONNALLY (interposing). You needn't go back over them. How long have you been producing 400,000,000 pounds a year?

Mr. DAVIS. When the war broke out in September of 1939, we were producing about 90,000 tons—that is 180,000,000 pounds—and by progressive steps, as the plant was increased over that period, we have gotten up to about 400,000,000.

#### CORPORATE STRUCTURE OF ALUMINIUM, LTD.

Senator CONNALLY. Of course, you are a Canadian corporation, I suppose?

Mr. DAVIS. Yes, sir.

Senator CONNALLY. But the stock is largely owned by the parent company here in the United States?

Mr. DAVIS. No, sir; none of it is owned by any parent company of ours.

Mr. FULTON. It is the same group of stockholders.

Senator CONNALLY. The same people are interested, are they, largely, or not? You are president of the holding company?

Mr. DAVIS. Yes, sir.

Senator CONNALLY. In Canada. And the producing company is a subsidiary of your company?

Mr. DAVIS. That is correct.

Senator CONNALLY. Well, are you a subsidiary to somebody, or is it an independent corporation, the Canadian corporation, your corporation?

Mr. DAVIS. Aluminium, Ltd., is an independent corporation, a Canadian corporation, and its stock is entirely owned by the public.



Senator CONNALLY. I see. Well, a lot of those live in the United States, don't they?

Mr. DAVIS. Yes, sir; a large——

Senator CONNALLY (interposing). What volume of your stock is owned in the United States? Do you know?

Mr. DAVIS. I have no positive knowledge, but it is my conviction that the majority of the stock is owned by people living in the United States.

Senator CONNALLY. In the United States. I am not asking you just through curiosity—you are a Canadian citizen, I suppose?

Mr. DAVIS. No, sir. I am an American citizen.

Senator CONNALLY. You are an American citizen. You have been in Canada a long time, though, haven't you?

Mr. DAVIS. I actually live in the United States. I have been working in Canada for about 12 years.

Senator CONNALLY. Oh, I see. You are an American citizen, and you go over to Montreal to tend to your business. Is that right?

Mr. DAVIS. I do. I live near Boston, and I go to Montreal and to New York in about equal proportions for attending to my business.

Senator CONNALLY. I see. Why do you go to New York?

Mr. DAVIS. New York is an important center, and we have an office there of a subsidiary company.

Senator CONNALLY. You do have an office there?

Mr. DAVIS. We have a subsidiary company which is located in New York City.

Senator CONNALLY. You go to New York for business, then, not just for the pleasure.

Mr. DAVIS. For business.

Senator CONNALLY. Have you been prosecuted in any suits filed against you in Canada for violation of their antitrust laws?

Mr. DAVIS. No, sir.

Senator CONNALLY. Never have had any?

Mr. DAVIS. Never.

Senator CONNALLY. Do you have any working agreements with the Aluminum Co. of America by which you allocate somewhat your productions?

Mr. DAVIS. No, sir; we have none.

Senator CONNALLY. You have none—haven't had any lately?

Mr. DAVIS. No, sir.

Senator CONNALLY. How long have you been president?

Mr. DAVIS. Thirteen years.

Senator CONNALLY. How came you, an American citizen, to go over to Canada to engage in this business? That may be an impertinent question. If you regard it so, you don't need to answer it.

Mr. DAVIS. I don't regard it at all as impertinent.

Senator CONNALLY. Were you in the aluminum business before you went to Canada?

Mr. DAVIS. I was.

Senator CONNALLY. Working for the Aluminum Co. of America?

Mr. DAVIS. Yes, sir; at Pittsburgh.

Senator CONNALLY. You didn't have any break with them when you went to Canada, did you?

Mr. DAVIS. A complete separation was effected. I call it a break in that sense. It was a break in the sense that it was and is a complete separation.

Senator CONNALLY. I understand that. No personal or hard feelings?

Mr. DAVIS. On the contrary, I have no ill will or hard feelings toward any of my former associates.

Senator CONNALLY. Where did you get your ore in Canada? Where do your producing companies in Canada get their ore?

Mr. DAVIS. Almost entirely from a British colony in South America, British Guiana.

Senator CONNALLY. Do you pay duty on that, or does that come within the imperial-tariff preferential?

Mr. DAVIS. It comes within the imperial tariff preferential system.

Senator CONNALLY. So that you really get your ore more cheaply than the people in the United States get theirs, don't you?

Mr. DAVIS. I don't know how cheaply the people in the United States do get theirs.

Senator CONNALLY. I mean there is a tariff duty here on ore, so you have a preferential advantage there; being within the British Empire, their colonies have a differential reduction in tariff rates.

Mr. DAVIS. That is correct.

Senator CONNALLY. I assume that you probably get your ore more cheaply than people in the United States get theirs. Do you have your own ships, or do you just ship by ordinary commerce?

Mr. DAVIS. We have several ships of our own.

Senator CONNALLY. That is what I mean.

Mr. DAVIS. One of which was unfortunately sunk the other day, but I think we have three or four left.

Senator CONNALLY. So you haul your own ore from British Guinea largely, as much as you can.

Mr. DAVIS. As much as we can, and the rest we charter ships for transportation.

Senator CONNALLY. Do you bring it right to Montreal? There is deep water at Montreal, isn't there?

Mr. DAVIS. We have a plant situated up the Saguenay River, not far up the river, and we load at a nearby port on the river.

Senator CONNALLY. I see. Has Canada any priority laws whereby you are required to turn over to the military authorities any percentage of your output?

Mr. DAVIS. I would say, Senator, that except insofar as our output is under contract to the British Government, the remainder is subject to the distribution of the Canadian authorities.

Senator CONNALLY. You mean you put at the disposal of the British Government and Canadian Government all of your output? They control it?

Mr. DAVIS. I certainly would say that they have control of it, and I would go further and say that they take most of it.

Senator CONNALLY. Well, now, why do you say that they have control of it unless they have some law or something on the subject? You mean you voluntarily entered into an agreement with them whereby you let them allocate it, and so on?

Mr. DAVIS. I may not be technically correct, but in a general way the distribution of aluminum in Canada is subject to a comptroller, as it is in England.

Senator CONNALLY. That is what I am getting at. Government authorities control the allocation and what you do with your aluminum. Do you fix the price, also?

Mr. DAVIS. No, sir. The price is subject to negotiation.

Senator CONNALLY. Negotiated price. What do you get for your aluminum in Canada when you sell it to the British Government or Canadian Government? What are you getting now?

Mr. DAVIS. We are getting 18 Canadian cents a pound, f. o. b., the point of shipment.

Senator CONNALLY. That would be a little less in American money, I suppose, wouldn't it? The Canadian dollar now is not on absolute parity with the United States dollar.

Mr. DAVIS. No, sir; it is not.

Senator CONNALLY. There is a little exchange rate there.

Mr. DAVIS. Yes, sir; about 10-percent exchange.

Senator CONNALLY. About 10 percent, so if you are getting 18, that would be about 16.2 American money; right?

Mr. DAVIS. Yes, sir; that is substantially correct, and I should say, to avoid misunderstanding, that the price is subject to an adjustment, up or down, depending on how costs vary in the future.

Senator CONNALLY. I see. Can you tell how much of your output is being manufactured in Canada in airplanes and war materials, and how much is going to Great Britain? Do you know?

Mr. DAVIS. Well, I know that by far the largest part goes to Great Britain.

Senator CONNALLY. I mean the raw aluminum which goes over there and is manufactured in England, in Great Britain.

Mr. DAVIS. Mostly it goes to England in raw form and is manufactured there by one of our other subsidiaries and many other companies.

Senator CONNALLY. How many subsidiaries have you?

Mr. DAVIS. Twenty-five or thirty.

Senator CONNALLY. Twenty-five or thirty?

Mr. DAVIS. I haven't counted them up to be accurate, but I would say that.

Senator CONNALLY. Somebody in your firm knows how many subsidiaries you have, don't they?

Mr. DAVIS. Yes, sir.

Senator CONNALLY. Why the necessity for 30? Have you got them in other parts of the world?

Mr. DAVIS. Yes, sir. We have a company in England which I referred to.

Senator CONNALLY. One in British Guinea that mines the bauxite?

Mr. DAVIS. Yes, sir; that is another one.

Senator CONNALLY. And another one for the shipping, I suppose?

Mr. DAVIS. Yes, sir. Two, in fact.

Senator CONNALLY. And so the mamma company pays the shipping man for the shipping, and, of course, she pays the subsidiary that produces the ore, and all of them, of course, have to get divi-



dends and profits. That is right, isn't it? I am not trying to heckle you. We have a tax bill coming up pretty soon, and I am on the Finance Committee and I would like to find out about these things, not only for this hearing but for the taxation purposes, not that your company would be subject to taxation, but it might have a pattern in the United States.

Mr. DAVIS. Our practice is to integrate the companies in our group either according to geographical location or according to the character of the work they do; insofar as practical, we require that each of them keep on their own bottom and run themselves and support themselves.

Senator CONNALLY. When you were originally organized, I suppose the prime movers and promoters were gentlemen that were interested in the Aluminum Co. of America, were they not?

Mr. DAVIS. The company was organized by the Aluminum Co. of America.

Senator CONNALLY. That is right.

The CHAIRMAN. They got all their assets from the Aluminum Co. of America, didn't they?

Mr. DAVIS. At the beginning, I think my answer is substantially yes. Of course, a great many other properties and assets have since been acquired.

The CHAIRMAN. That is all.

Mr. FULTON. Have you done any exporting in the last 2 years to any countries other than Great Britain and the United States?

Mr. DAVIS. Yes, sir.

Mr. FULTON. And what countries are those?

Mr. DAVIS. Principally to France—before the collapse.

Mr. FULTON. And in addition to France, to whom?

Mr. DAVIS. I am unable to say whether it is strictly within the 2-year period, but large quantities were a year or more ago shipped to Japan.

Mr. FULTON. And to any other countries?

Mr. DAVIS. Scattering amounts to a good many other countries, but since September 3, 1939, none to any person or firm in proscribed territories dictated by the British and Canadian laws.

Mr. FULTON. Does that proscribed territory include Japan?

Mr. DAVIS. No, sir.

The CHAIRMAN. That is all, Mr. Davis. Thank you.

Mr. Krug.

Do you swear that the testimony you are about to give in this proceeding will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. KRUG. I do.

#### TESTIMONY OF J. A. KRUG, MANAGER OF POWER, TENNESSEE VALLEY AUTHORITY

The CHAIRMAN. You heard the testimony about Fontana, Mr. Krug. Will you tell us the viewpoint of T. V. A. on Fontana?

Mr. KRUG. Yes, sir; I would be pleased to.

The CHAIRMAN. What is your position with T. V. A.?

Mr. KRUG. I am manager for power.

The CHAIRMAN. For the T. V. A.?

Mr. KRUG. Yes, sir.

The CHAIRMAN. And your name is J. A. Krug?

Mr. KRUG. Yes, sir.

#### T. V. A.'S VIEWS REGARDING FONTANA PROJECT

The CHAIRMAN. I am interested to know the viewpoint of the T. V. A. on this Fontana controversy. You heard the testimony this morning, did you not?

Mr. KRUG. I did; yes, sir.

The CHAIRMAN. I would like to have the facts if the T. V. A. can supply them to us.

Mr. KRUG. I want to point out first that I did not come here prepared to testify and I do not have any papers with me and I will have to speak from memory. I think the thing I should say first is that the T. V. A. feels and has felt for a long time that the Fontana development should be built and built in a hurry. A little over a year ago when the urgent demand for power first became apparent to most everyone, we projected a plan for providing additional power capacity in the Southeast, and we wanted to include the Fontana project. There followed a series of meetings with Mr. James P. Growden, who is, I believe, chief hydraulic engineer for the Aluminum Co. of America, and it appeared that the company would prefer to develop the project itself, so we excluded it from our plans at that time, and at the recommendation of the Defense Commission we proposed to Congress and Congress later approved the construction of the so-called Cherokee project, a hydroelectric development on the Holston River, and a large steam plant near the Watts Bar Dam.

Starting, I believe, in May, and running through the summer, we conducted negotiations with the Aluminum Co., which culminated in a contract in October of 1940 under which we expected the company to build the project with its own funds and integrate its operation with the T. V. A. system in such a way as to maximize the benefits. I think I should explain there that this is one of the major developments in the Southeast, and located in the main tributary, or one of the main tributaries, of the Tennessee River system. It has an unusually strategic location from the point of view of the operation of the entire watershed, and it was therefore necessary, in order to safeguard the utilization of that site, that its operation be agreed upon so that we did not have waste of that site and the stored water through the other projects which the Government had built in the main Tennessee down below.

Shortly after that agreement of October 17, 1940, was reached and executed, the company learned from the Federal Power Commission that they would be expected to take out a license. I think I can say that throughout the negotiations we were reasonably certain that they would need a license, and we had on several occasions advised the company that we thought that would be the case. But when they finally learned that the Commission would require a license, they decided not to build the project, although several weeks elapsed during which they decided or at first planned an appeal from the Commission's finding, and later decided not to go through with it.

As Mr. Wilson pointed out, the *New River case* was decided and I guess they decided that more or less concluded the matter.

I believe it was about the same time that this decision was reached that the company indicated that it might build the project anyway under a license if the Government would put up the money and take the risk. At that time, the T. V. A. Board advised the company and advised the Office of Production Management that we would not agree to the development of the project with Government funds and at Government risk unless the Government would own the project and be able to devote the benefits of the project to the public good.

I would like to have inserted here, if you approve, a copy of the letters that we addressed from the Authority to the company and to the office of Production Management which set forth our views on that question far better than I can here this morning.

The CHAIRMAN. That will be done. Will you furnish the reporter with copies of those letters and they will be inserted in the record at that point.

Mr. KRUG. Yes, sir; I will do that.

(The letters referred to were marked "Exhibit No. 83" and are included in the appendix on p. 948.)

Some time later we again discussed with the Office of Production Management the great need for additional power capacity in the Southeast, and I would like to take just a minute to explain what that situation is. As the committee perhaps knows, aluminum companies generally operate on a large proportion of secondary power, secondary hydroelectric power. Now, that power is available only on the order of 70 or 75 percent of the time, which means that plants must be larger than are needed for continuous operation, with the hope of building up stocks when the power is available and drawing upon those stocks when no secondary water power is available.

Carrying out that general policy, the company has at its existing plant at Alcoa a deficiency in primary power of something like 150,000 kilowatts, and at its Badin plant in North Carolina some figure of approximately 80,000 kilowatts, and the other aluminum producer in the Southeast, the Reynolds Metal Co., has secondary power to the extent of about 40,000 kilowatts.

It has become necessary during this period of emergency to operate these plants at capacity all the time, whether secondary power is available or whether no secondary power is available, and as a result it has been necessary to ration power and curtail civilian uses throughout a large part of the Southeast. I am only bringing this in to indicate the urgency of getting additional power supply and getting it in a hurry.

We have at times discussed that situation with the company and with the Office of Production Management, and all of those facts are available to the Office of Production Management. I understand that recently they have decided that all aluminum production in the Southeast should be supported by continuous power supply, so that you can count on the capacity all the time and not depend upon the vagaries of Mother Nature.

In March of 1941, at the request of the Office of Production Management, we projected a program for additional power supply



from the Southeast. That program was in four parts: One, the so-called Hiwassee program, which included several small dams on the Hiwassee River; the second, two projects on the Holston River, upstream from the Cherokee Dam now under construction; the third, the Fontana project; and the fourth, an installation of additional units at plants already in operation, coupled with a transmission plan for firming up that capacity by using surplus steam generation in the other systems of the North and East.

The CHAIRMAN. So that this Fontana project is in fact a vital part of the whole T. V. A. system?

Mr. KRUG. The Fontana project, in my opinion, is a vital part of the power-supply problem in the Southeast. As far as we are concerned, as I pointed out at the outset, we don't care who builds it provided it is built and built in a hurry. We do think that if the Government puts up the money the Government should own the project.

I pointed out before that it is of vital importance to integrate the power of the entire watershed, because you don't have storage sheds like that on every tributary, and not any large number of them, and this would be perhaps as important as any. It ranks in the category of Norris Dam insofar as its importance is concerned in the unified development of the entire river system.

In May of this year, the Office of Production Management approved one small part of that program, merely the Hiwassee program, which amounted to about 25 percent of the total, and that has been presented to Congress and I believe it was approved in the House the other day. While they did not reject the balance of the program, they did not approve it. After that, late in May, I had further conferences with the Office of Production Management at which they expressed the need for even more aluminum production in the Southeast than the present plants can supply, and requested specific plans from the T. V. A. as to what could be done to meet the power supply problem. We submitted, shortly thereafter, in a letter, I believe dated May 26, from Chairman Morgan to Mr. Knudsen and Mr. Hillman, a comprehensive program for providing the needs then projected, and in that program the Fontana project was included.

Now, as Mr. Wilson points out, the Aluminum Co. owns most of the site, and any development on our part would be premised on working out with them the kind of agreement necessary to permit our purchase of the site, and also the operation of the project in conjunction with the two plants of the Aluminum Co. immediately downstream, and the plants of T. V. A., on the main Tennessee River, also downstream, of course.

I have wired the Aluminum Co., and I would like to submit a copy of that wire, that we must have their final view as to whether they would permit the T. V. A. to develop the project. Mr. Wilson wired that they would be pleased to cooperate and telephoned me at the same time, suggesting that Mr. Growden would be in the Southeast within the next day or two and that he would be in touch with me.

We had a conference with Mr. Growden on a date I would like to supply a little later, and outlined to him the general basis for

agreement under which T. V. A. would undertake development of the Fontana project.

About a week ago on Saturday, Mr. Growden called to say that the company had decided to go ahead and develop the project under a license and that it would be unnecessary to hold any further conferences on the plan that we had proposed for T. V. A. development. I told Mr. Growden that we were still in agreement with the original arrangement under which they could develop it, that if the company, was now prepared to go ahead and build the project with its own funds and with a license the Authority would cooperate in every way possible. Since that time I have heard nothing further except this morning I talked briefly to Mr. Wilson and Mr. Ingersoll, and I find that the matter has been presented to the Office of Production Management and that an effort is being made to obtain Federal assistance in financing, but while I am not sure that I understand the plan, not in such a way that would require the Federal Government to assume an unreasonable risk, I think that generally summarizes all the negotiations during the recent period on the Fontana project.

The CHAIRMAN. Thank you, Mr. Krug. That is all.

Mr. Arthur Davis.

Mr. Davis, do you swear that the testimony you are about to give in this proceeding shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. DAVIS. I do.

#### TESTIMONY OF ARTHUR V. DAVIS, CHAIRMAN OF THE BOARD, ALUMINUM CO. OF AMERICA, PITTSBURGH, PA.

The CHAIRMAN. Mr. Davis, you are president of the Aluminum Co. of America?

Mr. DAVIS. I am chairman of the board.

The CHAIRMAN. Chairman of the Board of the Aluminum Co.?

Mr. DAVIS. Yes, sir.

The CHAIRMAN. You have heard the testimony and the comments this morning with regard to the efforts of this committee and O. P. M. and almost everybody else to try to get aluminum for the United States Government at this time. What suggestions have you to make by which we can get aluminum? That is what we are after.

#### CONDITIONS INCIDENT TO ADDITIONAL PRODUCTION BY ALUMINUM CO. OF AMERICA

Mr. DAVIS. Well, the situation, as I see it, is that there are really only two broad programs, the first of which is to make available to us, or whoever it may be, the hydroelectric power which is already either developed or on the verge of being developed, and the second is to install a certain amount of steam power where it may be feasible and economical to do so. Just recently, however, there has been injected a rather new element in the situation, which, however, is in reality only a part of my first division, that is to say, that division which makes use of the hydroelectric facilities already installed.

At Niagara Falls there is a powerhouse which was heretofore used as a stand-by powerhouse in case of accident to the other power-

house, but was not provided with sufficient water on account of the diversion of water from the Niagara River being limited by treaty. Just within the last few days, however, I am advised that Canada has agreed to permit an additional diversion of 5,500 cubic feet per second, and that will enable this stand-by plant to be put into operation and to run continuously as a No. 2 plant of this company which owns it and the other plant there, which is the Niagara Hudson Power Co. This stand-by plant will produce about 100,000 kilowatts. So that my first division in reality consists of the various governmental authorities, as they call them, which have power which is practically finished or altogether finished, plus this 100,000 kilowatts at Niagara Falls.

The CHAIRMAN. How much aluminum would that 100,000 kilowatts enable you to make if you could make use of it?

Mr. DAVIS. One hundred million pounds per annum.

The CHAIRMAN. One hundred million pounds per year?

Mr. DAVIS. We have tried to tell or advise the O. P. M. how, in our opinion, this power situation could be utilized and divided up in such a way as to produce aluminum in the shortest possible time, and I think that that is what Mr. Wilson really referred to when he said they had various alternates in mind, but if they will go ahead and allocate it, we will go ahead and use whatever they allocate to us. All of which, you understand, is quite in addition to and outside of Fontana, which we would be glad to build.

The CHAIRMAN. Well, if this committee can put a firecracker under the tail of O. P. M. and get that Fontana project out, are you willing to go ahead with it immediately?

Mr. DAVIS. If we can arrange for financing on acceptable terms, upon suitable terms, terms that will either permit us to finance it with the banks, or we prefer, if we can, to finance it with the Finance Corporation.

The CHAIRMAN. This committee wants aluminum. As I said awhile ago, we want to get aluminum where we can get it, and if you can produce 100,000,000 pounds of aluminum or 20,000,000 pounds of aluminum, we are urging you to do everything you possibly can to do it, because we need it.

Mr. DAVIS. We can produce at Massena, N. Y., and have agreed to so produce at Massena, N. Y., and at our own expense, 70,000,000 pounds per annum, provided the power will be made available to us, and it is our belief that there is sufficient power just across the border in Canada to permit that operation. I might say that at Massena now we are producing with Canadian power one hundred and twenty-odd-million pounds per annum. We can produce, I believe, at Buffalo or Niagara Falls or some such nearby place, another hundred million pounds from this Niagara Falls Power Co. stand-by plant, and we ought to be able to produce that in a very short time.

We also can produce at Vancouver, at Bonneville, as much aluminum as we will be allocated power to produce.

I am advised there is 160,000 kilowatts of power at Bonneville which could be made available. We cannot make propositions to these Government authorities very well, but when they talk it over with us we make some suggestions.

We have suggested two things: First, that we increase our plant at Bonneville by 65,000 kilowatts.



The CHAIRMAN. Well, now, is all you need electric power to produce this aluminum? You have got all the raw materials necessary to produce it.

Mr. DAVIS. Yes.

The CHAIRMAN. If you get the power?

Mr. DAVIS. We will have it by the time we get our plants built.

The CHAIRMAN. You know, there is nothing to prevent this committee from making any suggestions it pleases to any Government authorities or anybody else. That is the reason we are asking you here to give us suggestions. We want to get aluminum. We don't care how we get it as long as we get aluminum for this emergency.

Proceed, Mr. Davis.

Mr. DAVIS. Well, that is about all that I have to say excepting that we have suggested as a very advantageous proposition that the Government build, which we have agreed to design and construct and operate for the Government if they want us to do so, a steam-power plant in Arkansas, or near Arkansas. We chose that place because it is very close to the Arkansas bauxite deposits, and we feel that in the interest of freeing as many railroad cars as possible for other purposes that would be a very desirable place for a plant of seventy-five or a hundred million pounds per annum.

The CHAIRMAN. Can you get all the bauxite into this country from South America that you need for all this increased production?

Mr. DAVIS. If we have ships; yes, sir.

The CHAIRMAN. Well, have you the ships?

Mr. DAVIS. No, sir. I can't give you the exact figures, but speaking roughly, we have about 25 to 30 ships of our own, and we charter not quite as many more, but almost as many more. These charters are running out, of course, from month to month, and when we recharter we have to pay very much increased prices.

The CHAIRMAN. I imagine so.

Mr. DAVIS. And we are quite willing to do that, but the shipping program is so tight at the present time, that I believe that ships are going to be quite a bottleneck in the aluminum production, but if we get the ships we can make the aluminum the same as if we get the power we can make the aluminum.

The CHAIRMAN. Well, have you a stock pile in this country?

Mr. DAVIS. I beg your pardon?

The CHAIRMAN. Have you a stock pile of bauxite in this country?

Mr. DAVIS. No; not of any amount. We have about 30,000 tons on the ground here. I might say in that connection two things. Did I say "30"? I should have said 130. I knew it was 130, but I just said it wrong.

The CHAIRMAN. I was going to say 30,000 tons wouldn't be a drop in the bucket.

Mr. DAVIS. No; 130,000 tons.

First, that we started, when this emergency began, to put in a stock of 250,000 tons. We had at that time, I think, only quite an insignificant stock. But the program of aluminum, the amount of our production, has increased so rapidly that the increased output of lauxite which we have been able to mine has been put into immediate production instead of into the stock pile, so that instead of having 250,000 tons, as we hoped to have even a few month ago, we now have only 130,000 tons.

The other point that I want to make is that I wouldn't want you to think that this country is entirely dependent upon South America. We have blocked out and to a certain extent stripped a very large tonnage in Arkansas, and we can produce a very large amount of bauxite in Arkansas inside of 2 or 3 months' time. I don't know just how the figures would be, but I believe that before our stock pile would be exhausted we would be able to supply a very much larger amount from Arkansas. Mr. Wilson tells me we have 1,700,000 tons of bauxite stripped now in Arkansas in reserve.

The CHAIRMAN. What is the total estimated deposit in Arkansas?

Mr. DAVIS. The total estimated deposits in Arkansas are five or six million tons of high-grade bauxite, and perhaps 30,000,000 tons of low-grade bauxite.

The CHAIRMAN. You can make aluminum out of the low-grade bauxite but it is more expensive. Isn't that true?

Mr. DAVIS. It is somewhat more expensive. It takes about 6 tons of that bauxite to make 1 ton of aluminum, while it takes only about 4 tons of the high-grade bauxite.

The CHAIRMAN. So we wouldn't be up the creek if we couldn't get any bauxite from South America?

Mr. DAVIS. No; but it would be an awful pity if we had to pull all the bauxite out of Arkansas. That is what we might do before very long if it kept up very long. In other words, what I hope you deduced from that remark is that I hope the Government will see that we get ships.

The CHAIRMAN. I hope that we can get aluminum and I hope that the Aluminum Co. of America and the O. P. M. and the T. V. A. and whoever else it takes, all the A B C's in the Government, if necessary, will cooperate to get aluminum. That is what we want.

Mr. DAVIS. You can count on us.

#### NEGOTIATIONS PRECEDING APPOINTMENT OF ALUMINUM AND MAGNESIUM PRIORITIES COMMITTEE IN O. P. M.

The CHAIRMAN. Mr. Davis, I have been told that you were responsible for the appointment of the Priorities Committee in O. P. M. Is that true?

Mr. DAVIS. No, sir.

The CHAIRMAN. Did you make the recommendation for the Priorities Committee?

Mr. DAVIS. No, sir. That is not true. But I should tell you, if I may, what the facts are.

The CHAIRMAN. I would like to know them.

Mr. DAVIS. And you can make your own conclusions. Mr. Folsom, who at that time had charge of the aluminum industry in O. P. M., asked me to give him the names of a number of people prominent in the industry. At that time Mr. Folsom explained to me that the program would be to appoint a disinterested outstanding man as the chairman of each committee and that there would be four other members of the committee, one from the Army, one from the Navy, one to represent the industry, and one to represent the consumer. I remember I told Mr. Folsom that I could speak for the outstanding man right now and I would like Owen Young, and he said, "Owen Young has already been spoken for by the Steel Corporation," so I

made no further suggestions for the chairmanship. Then I did give Mr. Folsom some few days afterward a list of, I would say, 30 men of standing and ability and worth in the industry. He made no comment on them, but out of those he did pick one, I think, for one of the committees, Mr. Farrell, the vice president of the Fairmont Aluminum Co., who was on this list that I gave him. You understand, my list contained no recommendations; it was merely a list of people that were prominent and solid in the industry.

The CHAIRMAN. I just wanted to find out what the facts are. I wanted to know if the Aluminum Co. of America had appointed the Priorities Committee for O. P. M. We had some argument about the priorities as they were distributed in O. P. M., and it looked to me very much as if there had been decided favoritism in the allocation of these priorities. I was just trying to find out what was the cause of that situation.

Mr. DAVIS. May I add, Mr. Chairman, that in this list of 30 there was nobody connected with the Aluminum Co. of America. I carefully avoided putting any of our own people on this list.

Mr. FULTON. Mr. Davis, did you refer to a smaller list at any time than 30? Did you ever segregate any persons out of that 30?

Mr. DAVIS. No.

Mr. FULTON. Did you ever attend a meeting of any aluminum people at which you made any statement concerning priorities?

Mr. DAVIS. I did.

Mr. FULTON. Will you tell us what that statement was?

Mr. DAVIS. One of the 30 people, if there were 30, on my list was Captain Castleman, a former naval captain in the United States Navy, and who is now and has been for several years serving as the secretary of the Aluminum Association. The Aluminum Association is a trade association of which practically all people who use aluminum in quantity are members. I think there are 20 members. Captain Castleman is the secretary of that association and is paid by the Association and is consequently an employee of all the aluminum industry of this country. When I gave this list to Mr. Folsom he called attention to the fact that no Aluminum Co. of America man was on it and he thought that there should be. I said no. Then he wanted to know who these other men were, some of this company and some of that company and some of the other company. I said Captain Castleman could be considered as not belonging to any company but as being an employee of all the companies. He wanted to know if it would be satisfactory to the Association to appoint Captain Castleman, and I said I didn't know whether it would or not, but that there was going to be a meeting of the Association in a week or 10 days and I would ask—I am the president of the Association—the Association whether any member of the Association would object to having their secretary also act on the priorities committee, and they all voted unanimously, with the exception of the Reynolds Co., which was not present. I don't know how they would have voted if they had been present. All those who were present voted unanimously that they would not only see no objection to it but they would like to approve the appointment of Captain Castleman.

As far as I now recollect, I never reported that to the O. P. M. because I think the matter didn't go beyond that stage.



Mr. FULTON. Did you make the statement to that association that you had been asked by the O. P. M. to recommend the persons to serve on the priorities committee?

Mr. DAVIS. No. I said I had been asked to recommend a list of people, as I have just explained.

Mr. FULTON. And did you tell the Association that you had a list that you were recommending and then tell them the names that you had in mind?

Mr. DAVIS. I can't remember whether I made that specific statement. May I ask Mr. Wilson? I either did or didn't, and if I didn't, then it was a fair deduction that I had been coerced. I told them that I was asked to make a list.

Mr. FULTON. As I understand it, then, your position is that the Aluminum Co. will furnish aluminum if the Government can obtain the power for the Aluminum Co.

Mr. DAVIS. And if the Government will assist us, or if we can do it ourselves, to do the financing. You understand that we are not a large company like the United States Steel Corporation or some of these other big companies. We have already got \$200,000,000 on our backs, and while we would be glad to put another \$200,000,000 on our backs, we are getting toward the end of our financial string.

Mr. FULTON. You mean that unless you borrow money you are getting toward the end of the money that you can allocate from your profits toward the erection of more plants. Is that right?

Mr. DAVIS. Yes.

Mr. FULTON. In other words, if your profits aren't larger you will have to either borrow money or the Government will have to give it to you.

Mr. DAVIS. Of course, the profits are available for any purpose after the payment of taxes, and we would be pleased to use those profits for the development of this program.

Mr. FULTON. And it is with those profits that you expect to provide substantially the greater portion of this 200,000,000, is it not?

Mr. DAVIS. No, I wouldn't say that.

Mr. FULTON. You have borrowed 24 million, as I understand it.

Mr. DAVIS. Yes, we have borrowed. I don't know now just how much we have borrowed. At a rough guess, 20 to 25 million at the banks, and we are negotiating now for more money at the banks. Yes, I think we borrowed 10 million in the last week or 10 days.

Mr. FULTON. Then in a nutshell, if the Government will give you the ships and if the Government will give you the power and if the Government will help you finance the rest of it, you will produce the aluminum.

Mr. DAVIS. That is right, sir.

Mr. FULTON. That is all.

The CHAIRMAN. Thank you, Mr. Davis.

Mr. EWING.<sup>1</sup> Senator, you have asked for suggestions as to what would get more aluminum. I think it is our considered opinion that if the Department of the Interior or other authorities who have control of power would allocate it and make known to whom that would be available, whether to the Aluminum Co. of America or

<sup>1</sup> Oscar R. Ewing, of Hughes, Richards, Hubbard & Ewing, New York City, counsel for the Aluminum Co. of America.

anyone else, that that would speed this program more than any other one thing. Then the companies could go ahead with their plans, but until that is done they don't know just how to turn.

Mr. FULTON. Mr. Ickes testified that for 6 weeks he has been ready to discuss power and there has been no discussion of it. Of course, that would not necessarily be due to the Aluminum Co., but it might be due to the O. P. M. That was his testimony yesterday.

The CHAIRMAN. This committee will recess until next Tuesday at 10:30, at which time we will hear witnesses from the Navy Department on the question of the extent of profits in the shipbuilding business.

(Whereupon a recess was taken at 1:35 p. m., until 10:30 a. m., Tuesday, June 24, 1941.)

## APPENDIX

---

EXHIBIT No. 53 appears in full in the text on p. 735, *supra*.

---

EXHIBIT No. 54 appears in full in the text on p. 736, *supra*.

---

### EXHIBIT No. 55

[Submitted by Richard S. Reynolds, pres.]

REYNOLDS METALS COMPANY, INCORPORATED,  
*Richmond, Va., May 12, 1941.*

MR. A. I. HENDERSON,  
*Deputy Chief, Materials Branch, Production Division,  
Office of Production Management, Washington, D. C.*

DEAR MR. HENDERSON: We understand that the Government proposes to provide a minimum of 600,000,000 pounds of additional aluminum ingot, 200,000,000 pounds of which is to be imported from Canada and 400,000,000 pounds is to be produced with new plants. In reply to your inquiry as to what part of the 400,000,000 pounds Reynolds Metals Co. would be prepared to produce, I now respond as follows:

As you know, Reynolds Metals Co. is arranging to produce 120,000,000 pounds of aluminum in their three reduction units at Lister, Ala., three reduction units at Longview, Wash., and one alumina plant at Lister, Ala., which is sufficient to supply alumina for the combined reduction units.

Without unduly straining our organization, we are entirely confident that by locating additional plants at Lister, Ala., and Longview, Wash., we could increase our production by 200,000,000 pounds per year. To do this, we would have to build another alumina plant at Lister, Ala.; increase metal reduction units at Lister, Ala., from 3 to 6; and increase reduction units at Longview, Wash., from 3 to 10 (due to greater reservoir of power).

With our trained personnel, the production of our fabricating plants at Lister, Ala., Louisville, Ky., Richmond, Va., and Glendale, L. I., could be increased to any reasonable volume you may wish. New plants could be established on the west coast if desired. We could consider this expansion on substantially the following terms:

First. Government to furnish all money for—

- (a) New alumina plant.
- (b) Ten new reduction units in Lister, Ala., and Longview, Wash.
- (c) Fabricating plants.

Second. Some firm arrangement to be made whereby defense orders for aluminum would be distributed in proportion to the production capacity of the manufacturers.

Third. Reynolds Metals Co. to pay a nominal rental for use of facilities, and agree to operate the plants either on a management-fee basis or on an agreed-profit basis.

Fourth. As these additional facilities would necessarily be adjacent to our own plants, Reynolds Metals Co. should have the sole right, over a reasonable time, to acquire the facilities after the end of the emergency, on a deferred payment plan, at cost less agreed depreciation; the Government, however, to have the right at any time until the option of Reynolds Metals Co. is exercised to dismantle the plants or hold them as emergency war plants.



Fifth. Government to guarantee adequate supplies of following at no risk or cost to Reynolds Metals Co., except as used in operation (a) Bauxite, (b) coke, (c) power.

Sixth. Working-capital requirements to be met at no risk to Reynolds Metals Co. through at least 30 percent advance payments on all orders.

Very truly yours,

R. S. REYNOLDS, *President.*

RSR:M

---

EXHIBIT No. 56

HUGHES, RICHARDS, HUBBARD & EWING,  
*New York, February 21, 1941.*

HON. LELAND OLDS,  
*Chairman, Federal Power Commission,  
Washington, D. C.*

DEAR MR. OLDS: In line with what I told you at the conference with you and Mr. Youngman on the 7th instant, I hand you herewith for filing with the Commission six copies of Withdrawal of Declaration of Intention and Petition for Discontinuance of Proceeding, Without Prejudice in the matter of Declaration of Intention of Nantahala Power & Light Co. for the construction of a dam and hydroelectric power plant on the Little Tennessee River, called Fontana project, Docket No. DI-158.

Since our talk on the 7th instant, we have been doing all we can to make some progress in connection with the Fontana development. I have had one further talk with Mr. Youngman and he arranged for me to have a conference with Mr. Swidler and Mr. Krug of the T. V. A. Day before yesterday Mr. Swidler and Mr. Krug met with Messrs. Wilson, Growdon, and Thorpe of the Aluminum Co. of America and myself. Mr. Swidler and Mr. Krug contemplated presenting the matter today to the T. V. A. Board.

In the meantime, I have had conferences with representatives of R. F. C. and O. P. M. If T. V. A. does not want to proceed with the construction of Fontana, then Mr. Holden of O. P. M. is prepared to recommend that the project be built by the War Department and leased to the Aluminum Co. or a subsidiary for the usual 5-year period with an option on the part of the lessee to purchase the plant. Of course, the details of such an agreement would all have to be negotiated and the foregoing is merely the general type that such arrangements take.

Just as soon as I know anything definite I will advise you so that you may be kept abreast of such progress as we are making.

Cordially and sincerely,

OSCAR R. EWING.

---

EXHIBIT No. 57, introduced on page 874, supra, is on file with the committee.

---

EXHIBITS Nos. 58-82 are included in Hearings, Parts 4 and 5.

---

EXHIBIT No. 83

[Copy]

JUNE 20, 1941.

MR. I. W. WILSON,  
*Vice President, Aluminum Company of America, Pittsburgh, Pa.*

DEAR MR. WILSON: In the prepared statement which you read on Tuesday, June 17, before the Senate Committee Investigating the National Defense Program, you said, with respect to the Fontana project, that the Company feels—

\* \* \* that in the light of its other huge expenditures for the Defense Program, it cannot, with proper regard for its financial stability, put up

its own money to develop this project in the face of the government's power to take over the property at the end of the license period. Notwithstanding this feeling, the Aluminum Company has informed OPM, and also TVA, that it stands ready to take out a license and develop this project if the government will assist in financing the development; or, the Company will sell the project to TVA so that Authority may develop it; or if neither of these alternatives is acceptable, the Company is ready to cooperate in any other way that will make the power from this development available for the production of aluminum. The Company now reiterates that position. This matter is, and for some time past has been, under consideration by government agencies and the Aluminum Company is ready to proceed in any manner that they may determine.

As I stated to you at the hearing, this statement is not entirely clear to me. When in February you asked the views of the Authority on the proposal of the Company to construct the plant with government funds, our Board clearly set forth its position in a letter to you dated February 24, 1941. That position I repeated in my testimony before the Senate Committee. It is, in brief, that if the Fontana project is to be constructed with government funds and at government risk, the project should be owned by the government and operated for maximum public benefit.

Following the assumption of jurisdiction over the project by the Federal Power Commission, you advised that the Company did not intend to proceed with construction. Subsequently, we wired you asking whether the Company would be willing the cooperate in the construction of the project by the Authority and if so on what terms. In response, Mr. Growdon was assigned to negotiate an agreement pursuant to which the Authority would construct the project. Before the negotiations were well advanced they were terminated by Mr. Growdon with the statement that the Company had elected to proceed with construction under a federal license. In view of the Board's clearly stated position concerning construction of the project by the Aluminum Company with federal funds, we assumed that the proposal contemplated the use of Company capital or a loan from the federal government supported by the Company's credit. We also assumed that in view of the urgency of requirements for power and aluminum for defense that the Company would proceed immediately with the construction of the project. In your testimony on June 17, however, I failed to find any explicit assurance that the Company was prepared to proceed on the basis of its own credit and indeed the language which I have quoted from your statement looks in the other direction. We understand also that no application has yet been made to the Federal Power Commission for a license and that if the Company cannot make satisfactory financial arrangements with the Reconstruction Finance Corporation, it will abandon the project entirely.

It is hardly necessary to labor the point of the urgency of beginning construction of the project. As we have advised you, the Authority has included the Fontana Project in recommendations made to the Office of Production Management, at its request. We anticipate that these recommendations will shortly be submitted to Congress. It would be a serious blow to the defense program if the Company failed to build the project and at the same time postponed negotiations with the Authority so long as to make impossible the inclusion of the project in the program now being considered by the Office of Production Management.

The Company has been negotiating with the Authority with respect to this project for more than a year. Last fall an agreement was signed which we thought disposed of the matter and which gave us reason to anticipate the Company would begin immediate construction. The matter now seems little further advanced than it was a year ago. In normal times this might not be of great moment but further delays can hardly be justified. I am, therefore, asking you to write me at once whether the Company is prepared to proceed immediately with construction of the project under federal license and on its own credit and if not, upon what terms it is willing that the Authority should undertake the construction of the project.

Very truly yours,

J. A. KRUG, *Manager of Power.*

JAK:hf

JUNE 16, 1941.

The Honorable ROBERT P. PATTERSON.

*Under Secretary of War, War Department, Washington, D. C.*

DEAR MR. SECRETARY: It has been almost four weeks since the meeting with you on May 21. By the adoption of a number of emergency measures it has been possible to avoid any interruption to the supply of power to the Aluminum Company for capacity production. For the next few months vast amounts of power over and above contract commitments upon us will be needed to maintain aluminum production. That situation will be met, however, although it will call for curtailment and rationing of power for civilian and nondefense uses, as well as record-breaking construction schedules.

But it is with the greatest concern that I must tell you that for one hundred percent aluminum plant production in 1942 and 1943 the deficiency in power supply has grown desperately worse, and in the past month since our meeting in your office no action has been taken to meet this problem.

The nub of the crisis lies in this: that to build aluminum *production* plants requires about nine to ten months; to create a *power supply* for those plants takes more than twice that long. The Office of Production Management has advised us that for the Tennessee Valley region construction is soon to begin on aluminum plants, etc., that will require a total of not less than 700,000 kilowatts of continuous electrical energy. Those production plants must begin to operate immediately upon completion; you will agree, I am sure, that it is as unthinkable that new plants for aluminum production should stand idle for a moment for lack of power supply as it is that existing plants should be shut down for the same reason.

To meet this situation requires two things:

(1) Immediate construction of extensive interconnecting transmission lines between these plants on the T. V. A. system and the industrial region north of the Ohio River, curtailment and rationing in that region, and the transfer of the power thus saved to the new defense plants, pending completion of new power plants by T. V. A. The rationing and curtailment program now being put into effect in the Southeast must extend to an area vastly larger than this; for it is obvious that a deficiency of this magnitude cannot possibly be made up by any one area. Major interconnections by which the power saved by rationing and economies in the Northeast can be transferred to these new aluminum plants are therefore essential, in our opinion. Our proposal in this respect is the subject of study in the Office of Production Management; how critical is an early decision you can see.

(2) New power plants must, of course, be constructed, for so drastic a rationing program cannot be put into effect unless assurance is given that it is only temporary. Accordingly, the earliest possible approval of the building of new plants is imperative. Upon being requested to advise what the T. V. A. could do in this matter of new power capacity, on April 1 we submitted a plan in writing to the Office of Production Management. Only that small portion has been approved (117,000 kilowatts) about which you testified before the House Appropriations Committee and to which the House last Thursday gave its approval. The balance of the program is still under consideration.

From the point of view of the T. V. A. as a corporate enterprise such rapid expansion of power for a military material is undesirable, for it will involve us in postdefense problems of a very serious character. We are advised, however, that after calling on Bonneville and Grand Coulee for huge amounts of power, the T. V. A. region can supply the balance most quickly and economically. Hence we are gearing ourselves to do the job if we are called on. But time is running against us badly. It is only for that reason I am calling these facts to your attention. As I am sure you will realize, from a management point of view a week of time saved now may well be three or four weeks advantage in the closing days of the effort to meet this situation.

For your more complete information, I am enclosing a recent letter setting out the facts somewhat more fully; it is directed to Mr. Arthur H. Bunker, Acting Deputy Director of the Materials Division of the Office of Production Management, from the Authority's Manager of Power, Mr. J. A. Krug. If there is any further information either you or your associates desire on this matter, please call upon us.

Sincerely yours,

DAVID E. LILIENTHAL,  
*Director.*

Enclosure.  
DEL:cp.



[Copy]

JUNE 14, 1941.

Mr. ARTHUR H. BUNKER,

*Acting Deputy Director, Materials Division,**Office of Production Management, Washington, D. C.*

DEAR MR. BUNKER: We are writing you to set forth the results of the conference in your office last Wednesday between you, Mr. Holden, and Mr. Cortesi of the Office of Production Management, and Mr. Swidler and myself of the Tennessee Valley Authority, so that we may be sure that we have a common understanding of the facts of the case and of the plan of action which is required.

As we pointed out at the conference, at least 240,000 kilowatts of additional continuous power supply is needed to maintain full capacity production at aluminum plants already in operation or under construction in the Southeast. This includes 140,000 kilowatts at Alcoa, Tennessee, and 80,000 kilowatts at Badin, North Carolina, for plants of the Aluminum Company of America, and 20,000 kilowatts at Lister, Alabama, for the new plant of the Reynolds Metals Company. This situation results from the fact that the aluminum companies normally depend upon secondary or part-time hydroelectric power for a large proportion of their total production in order to obtain the advantage of the lower power cost thereby afforded.

Messrs. Holden and Cortesi have indicated the necessity of locating a new government-financed aluminum plant requiring an additional 220,000 kilowatts at or near the existing Reynolds plant and have expressed the view that an additional 120,000 kilowatts will be required for expansion of the Aluminum Company in the Southeast. We wish to emphasize again that the location of so much aluminum production capacity in the Tennessee Valley region presents a serious power marketing problem for the Authority. We hope that the Government will find it possible to locate a part of this capacity elsewhere. Should your Office decide, however, that the existing plants must be expanded or new aluminum plants located in this area in the interests of national defense, the total new power capacity required, including losses, will approximate 630,000 kilowatts for aluminum production alone.

In addition to these requirements, we are advised that the War Department proposes to locate at least three new ordnance and chemical plants in the Tennessee Valley region, which will also require very large amounts of power, and that plans are under way to expand the shell-loading plant now under construction near Milan, Tennessee. These additional loads will probably require approximately 70,000 kilowatts of continuous power. It is apparent, therefore, that for specific demands for defense purposes a total of about 700,000 kilowatts of continuous power will be required. This does not include any reserve to accommodate defense needs which cannot be predicted at this time but which we all know are certain to develop during the period required for construction of generating plants. None of these requirements is covered by existing construction programs or the Hiwassee program recently submitted to Congress, their output being already committed for other national-defense purposes, including aluminum production capacity already under construction. Regardless of the predominance which this program of expansion would give aluminum production in this area, we understand from Mr. Holden and Mr. Cortesi that the Authority will be expected to supply all or a major part of these requirements. If this is the case, at least three extremely important and urgent problems will be presented which are beyond the Authority's powers to solve and as to which you agreed that the Office of Production Management must bear primary responsibility.

First, even with prompt authorization and advanced priorities, much of the new generating capacity needed to meet these requirements cannot be made available in less than two years, although Mr. Holden has expressed the view that priorities can be secured by your Office which will make possible the completion of at least one large steam generating station and the hydroelectric units at existing projects within 16 to 18 months. Since we understand that the aluminum and other defense plants can be constructed in approximately 9 months and must be placed in full capacity operation as soon as they are completed, it will be necessary to try to secure the power required for interim operation from the existing power systems. You may find it necessary to locate the new plants in the Southeast, but the magnitude of the interim power requirements is such that they could not conceivably be met by the southeastern systems alone. To meet them would require the full cooperation of all of the power systems throughout the central

and eastern part of the country. Arrangements must therefore be made at once to map out a comprehensive power rationing program for this great area so that the energy thus made available can be diverted to operate aluminum and other national-defense plants during the time new generating facilities are under construction. Action must also be taken at once to make certain that the energy made available by rationing can be transmitted to the places where needed. This will be possible only by the establishment of new transmission line interconnections of sufficient capacity to draw off the energy thus saved by such a program to the new aluminum and national-defense plants wherever located, a problem which will require close cooperation of the Office of Production Management and the Federal Power Commission. We have submitted to the Commission a statement, a copy of which is attached, of our preliminary views as to a minimum interconnection and conservation program. The conservation program is based on that which the Authority has already placed in effect throughout its service area.

The rationing program which will ultimately be necessary to insure the operation of these defense plants pending completion of power facilities must be so drastic that it cannot be continued throughout any extended period without serious dislocation of the economic activities of the various areas which will be affected. Industries which are not essential in the defense program would be expected greatly to reduce their operations, and many industries and activities might be altogether eliminated.

Second, construction must be undertaken immediately to provide the generating facilities required to meet these national-defense power requirements on a permanent basis. You must advise us if we are expected to proceed with any part of this construction program. Any such program will require the approval of the President and of Congress, and these approvals cannot be secured unless the Office of Production Management is prepared to assume complete responsibility. Construction of these facilities has already been too long delayed, and even with prompt authorization the situation will be extremely critical. Any further delays may make impossible an assured power supply even by drastic rationing of power for civilian purposes.

The third matter is the public relations problem which will be involved if consumers from New York to Florida are compelled to curtail their consumption in order to maintain capacity operation at defense plants located in the Tennessee Valley region. The public will not readily understand that wherever these plants were located, the same curtailment would be necessary, and will attribute the situation to lack of planning on the part of T. V. A. Unless the Office of Production Management takes responsibility for educating the public on this matter, there is great danger that our participation in the period of interim operation pending completion of new generating plants would jeopardize the whole long-range program of the Authority. We are gratified at your realization of the seriousness of the problem and of the necessity for undertaking a comprehensive campaign to acquaint the public with the facts.

We are glad to have had an opportunity to discuss these problems with you so soon after you assumed office. The problems, however, are by no means new ones. We have long been attempting to focus attention on the danger to the defense program arising from the dependence of essential defense industries on the vagaries of the weather by reliance on secondary power, which is not available in dry years. Your immediate understanding of this situation was heartening to us. If it had been generally understood earlier, the situation would not now be so serious.

You may take for granted the cooperation of the Authority to the fullest extent in any program which the Office of Production Management may adopt. The matters we have mentioned, however, are beyond our powers. Our part of the job can begin only when the Office of Production Management has adopted a program and has obtained necessary authorizations.

Very truly yours,

J. A. KRUG, *Manager of Power.*

Attachments.

JAK&JCS:RB.

CC: Mr. Holden.

Mr. Cortesi.

Mr. Marks.

Mr. Swidler.



[Copy]

## MEMORANDUM FOR CONFERENCE WITH FEDERAL POWER COMMISSION

JUNE 10, 1941.

It is now clearly apparent that the critical power supply situation in the Southeast will require the adoption of a drastic program of curtailment of civilian uses if the power supply for national-defense requirements is to be adequate. There is an existing deficiency of approximately 250,000 kilowatts for aluminum production alone, and we are advised that the War Department will insist upon capacity operation of all aluminum production facilities. It is obvious that no one or two systems can obtain by curtailment the power needed to make up the present deficiency for aluminum production. This can be accomplished only by a uniform program of conservation and curtailment of nondefense power uses by all the larger systems from whom energy can be secured. It appears that no such plan can be developed by voluntary action on the part of the various power systems, which means that some recommendation or order will be necessary from the Commission.

We understand that studies are under way to determine priorities for all of the electric power loads throughout the Southeast. Pending the completion of such studies, however, and the scheduling of priorities, we believe that immediate action should be taken to require each power system to place in effect a voluntary plan of conservation and curtailment. The program which has been undertaken by the Authority and its municipal and cooperative contractors is outlined in the attached statement, and it is our view that this is the minimum which should be required at the present time. It may be that the Commission will conclude that the attached plan does not go far enough in meeting the situation. The Authority, for its part, is willing to participate in any plan however drastic which the Commission feels is necessary to solve the national defense power problem. It is our thought that the program outlined would provide an intermediate step to acquaint the public with the seriousness of the situation and prepare the way for exercising the priorities which will be necessary in obtaining the total reduction in non-defense loads.

In order to make certain that the power conserved through such a program can be made available to the national defense loads, each system should be required to outline to the Commission the problem with respect to transfer of surplus which will become available within its service area to other areas where power will be required for defense purposes. If transmission line capacities are the limiting factor, each system should propose a specific plan for remedying the condition, including information on the scope of the work, time necessary for completion, and the cost of the facilities.

The following interconnections are some of those which seem to us to be indispensable for this purpose: (1) connection between the system of the Aluminum Company of America and the Duke Company, perhaps through the facilities of Carolina Power and Light. This could be accomplished by a transmission line from Sylva, N. C., to Canton, N. C. (2) A transmission line between Louisiana Power and Light at New Orleans and the Mississippi Power Company west of Gulfport. (3) A connection between the Florida Power Systems and the Georgia Power Company. (4) A connection between Savannah, Georgia, and the integrated system of the Georgia Power Company. (5) Such strengthening of the system of the Arkansas Power and Light Company as would permit deliveries of its full excess capacity at Memphis.

A program of curtailment throughout the Southeast will probably meet the present deficiency. The problem will, however, become one which cannot be solved in the Southeast systems alone. We are advised by the Office of Production Management that at least 550,000 kilowatts for new aluminum production must be provided in the East within the next year. To the best of our knowledge, none of this capacity is provided for at generating plants now under construction, the output of which is already committed for other purposes. The total deficiency, therefore, which must be provided by constructing new plants is on the order of 800,000 continuous kilowatts. Since the aluminum plants will be ready for operation within a year, their capacity production can be made available only by utilizing existing surpluses and curtailment of nondefense requirements. Meeting a deficiency of this magnitude will require the participation of every major electric system in the East. At the present time such participation will be impossible for lack of adequate interconnecting transmission facilities to transmit power from the areas of



surplus to the points where it will be needed for defense purposes. There would be time to make such interconnections if immediate action is taken.

The basic lines needed for this purpose should be decided upon after a consideration of the various possibilities. It is clear, however, that some way must be found to transfer surpluses and the energy made available by curtailment of civilian uses from the New York metropolitan area and the New Jersey-Eastern Pennsylvania power pool to the Middle West and Southeast. This might be done by a connection between Buffalo, Pittsburgh, Cleveland, Cincinnati, and Alcoa, or by a connection from Baltimore to the American Gas and Electric system in central Virginia, with the Middle West region tied into the South by some appropriate connection between the northern systems and the TVA system.

#### THE CONSERVATION OF ELECTRICITY FOR NATIONAL DEFENSE

The Nation will be heartened to know of the wholehearted support accorded to the appeal by government and private agencies for consumer participation in the program of conservation of electricity for national defense. This appeal for conservation was made officially on May 25 by the United States War Department, the Office of Production Management, the Federal Power Commission, the Tennessee Valley Authority, the Alabama Power Company, Georgia Power Company, Mississippi Power Company, South Carolina Power Company, Gulf Power Company, South Carolina Electric and Gas Company, Duke Power Company, Carolina Power and Light Company, Birmingham Electric Company, and Lexington Water Power Company. During the past week, meetings have been held throughout the Southeast in order that the various public and private agencies distributing power might be familiar with the background of this appeal, and most of these agencies have already requested their consumers to save electricity so that ample power may be available for the production of materials essential to the Nation's defense.

To keep defense industries operating in their own communities outside the Tennessee Valley region, in Georgia, Alabama, and South Carolina, a program of conservation and curtailment has been in effect now for two weeks. Everywhere throughout the South there is evidence that the people are prepared to sacrifice, if necessary, in the interest of defense. There has now been developed a comprehensive plan of united action to avoid nonessential uses of electricity. We are happy to be able to tell you that every municipality and cooperative in the Tennessee Valley region has offered full cooperation in this program. Suggestions to the public on how to save electricity, developed in conferences during the past week, are included in the attached statement. It is hoped that these suggestions will cause a minimum of inconvenience to the public. They are directed only at the avoidance of waste and the elimination of non-essential uses. Every kilowatt-hour which is saved is a direct contribution to national defense.

The ways in which your system can participate most effectively in the conservation program are as follows:

1. Withdraw financial assistance given toward the installation of new electric ranges and water heaters which are to be substituted for nonelectric appliances. Existing policies with respect to financial assistance where appliances are to be installed in new homes or where appliances are moved from one location to another should continue unchanged.
2. Discontinue campaigns featuring electric ranges, water heaters, or other appliances which consume substantial quantities of electrical energy.
3. Assist customers in resetting water heater thermostats at approximately 135-145 degrees by making available services of meter readers, service men, or others.
4. Home economists employed by contractors should immediately begin efforts to educate customers having electric ranges in methods of reducing the consumption of electricity in cooking. Home economists employed by the Authority will render assistance in planning meetings, preparing menus, and laying out educational programs.
5. Give widest possible circulation to advertising and publicity materials to be provided by the Authority in order that customers may be fully

familiar with all methods by which the use of electrical energy may be reduced with a minimum effect on normal living.

6. Discuss the electrical-conservation program with each industrial customer and assist the customer in devising ways by which his consumption of electricity can be reduced.
7. Limit the extension of service to new customers to those which can be served from existing facilities. Service to new areas involving construction of new primary lines should be deferred until after the emergency.
8. Arrange meetings immediately with local merchants in order to explain the emergency and enlist their cooperation.
9. Announce your recommendation of the specific methods by which individual consumers of electricity may save power.

The foregoing suggestions are for your own information. There is attached, however, a list of suggestions to the public for saving electricity which we hope will be given the widest possible circulation.

We are now preparing publicity materials, including bill stuffers, posters, and window cards, which will be made available to you as soon as they are received from the printer. To be most effective, the program must begin immediately. It is urged that you begin your participation at once.

Our joint efforts in this program of power conservation form an essential part of the Nation's effort toward building an impregnable defense for this country.

J. A. KRUG,

*Manager of Power, Tennessee Valley Authority.*

Attachment.

#### SUGGESTIONS FOR THE CONSERVATION OF ELECTRICITY FOR NATIONAL DEFENSE

##### RESIDENTIAL

1. Turn off all lights not actually needed.
2. Turn off fans, radios, and other appliances when not actually in use.
3. Exercise care in the use of running hot water.
4. Repair all leaking hot-water faucets.
5. Discontinue the lighting of tennis courts, badminton courts, and other outside areas.
6. Use small wattage bulbs where night lights are required.
7. Set thermostats of water heaters at the minimum temperature satisfactory for ordinary domestic purposes; 135-145 degrees will be generally adequate.
8. Housewives have several ways in which they can make substantial savings; by preparing whole meals in thrift cookers and ovens, by closing refrigerator doors immediately, by ironing only once a week, and by minimizing the use of electricity in preparing food.
9. Turn off water heater and refrigerator prior to departure on vacation.

##### COMMERCIAL

1. Discontinue the lighting of show windows on all nights except Saturday.
2. Eliminate daytime use of lights in show windows.
3. Discontinue illumination of all outside and inside signs and billboards.
4. Limit daytime use of lights to dark areas only.
5. Turn off all lights not actually needed.
6. Avoid unnecessary use of lights in basements and storage areas.
7. Turn off fans and other electrical appliances when not actually needed. Use lights in the halls of office buildings only when required.
8. Instruct all janitors and other employees to limit lighting to minimum requirements.
9. Hotels should place cards in rooms requesting that lights and fans be turned off when the room is to be unoccupied.
10. Economize in the use of all electrical equipment, particularly cooking and heating devices.
11. Restaurants and cafes should turn off all general lighting except during meal hours.
12. Set air-conditioning equipment to operate at not more than eight degrees below outside temperature. (This may be compared with common setting of fifteen degrees below outside temperature.)

13. Beauty shops should turn off permanent-wave machines and heat devices when not in actual use.

14. Reduce elevator service by approximately 50% whenever possible.

15. Eliminate decorative lighting, such as lights in mechanical-music boxes and ornamental lighting in restaurants and cafes.

#### INDUSTRIAL

1. Each industrial plant should eliminate all uses not essential for production.

2. Limit the use of electricity for non-defense manufacturing purposes in order not to exceed April consumption. Seasonal industries will be expected to limit their use of electricity to the consumption during the previous season.

#### GENERAL

1. Discontinue all sports lighting such as night baseball, soft ball, etc. Games can be advanced to an earlier hour and thereby permit playing during daylight.

2. Reduce street lighting to the minimum within the limits imposed by consideration of traffic conditions and public safety.

---

[Copy]

The Files.

Rebecca Bowles.

June 7, 1941.

#### FONTANA

Mr. J. P. Growdon, of the Aluminum Company, called Mr. Krug this morning to say that it has been decided that the Aluminum Company will go ahead, in view of the rush for power, and build Fontana and take out a license. He went on to say that there was just one fly in the ointment which has not yet been solved—that they have so much money invested in their other expansions that they will have to arrange the financing, and that those arrangements are under way now. He told Mr. Krug that this is not a firm assurance, but a firm assurance with that one proviso. Mr. Krug said he was very glad to hear of the Company's decision, and assumed that this will make the meeting on Monday unnecessary. Mr. Growdon agreed.

---

[Copy]

MAY 31, 1941.

Mr. GORDON R. CLAPP,

*General Manager.*

J. A. KRUG,

*Manager of Power.*

#### CONFERENCE WITH MR. J. P. GROWDON OF THE ALUMINUM COMPANY

Today Mr. Swidler, Mr. Kampmeier, and I met with Mr. James Growdon, of the Aluminum Company, to discuss terms under which the Authority might construct the so-called Fontana hydroelectric development on a site which is largely owned by the Aluminum Company and which is immediately upstream from two existing projects of the Aluminum Company.

I explained that the Authority had been requested by the Office of Production Management to submit a comprehensive plan for expanding electric generating facilities in the Southeast; that the Fontana project was included in the program recommended by the Authority, subject to reaching a satisfactory agreement with the Aluminum Company; and that it was necessary to know the terms under which Fontana could be constructed to determine whether it should be finally included in the projected program.

Mr. Growdon said the company was anxious to cooperate and would be willing to dispose of the site at a fair price, assuming a suitable agreement could be reached with respect to the operation of the company's downstream plants. There followed a long discussion concerning the value of the site. Mr. Growdon said the company was entitled to be reimbursed for the money spent on the



property and carrying charges, including 5 percent interest compounded annually to date of acquisition by the Authority.

Representatives of the Authority finally proposed that a fair price for the site should include the following:

1. The actual cost of the property to the company, including the cost of acquisition but exclusive of interest, taxes, or other carrying charges.

2. The actual cost of relocations of roads or other improvements made by the company which were substantially less costly when made at the time than would be the case at present, plus 3 percent interest compounded annually on the cost of such relocations and improvements.

3. The actual cost to the company of surveys and studies useful in the development of the site, exclusive of any carrying charges thereon.

There followed a long discussion concerning the operating problems involved in connection with the downstream developments. Mr. Growdon pointed out that there are two kinds of benefits which should be shared: first, the benefits of Fontana storage through the Aluminum Company's downstream plants, and second, the benefits of coordinated operation of the entire system of the Aluminum Company with the system of the Authority. We pointed out that we thought the company was entitled to get one-half of the benefits at its downstream plants which would result from the construction of Fontana, the Authority to retain the other one-half. Mr. Growdon stated that this sounded like a fair plan to him but suggested that some plan be devised to insure the company of a continuous band of power of some specified amount, as intermittent power would not be suitable in the company's operations.

It was then suggested that the arrangement be carried out in terms of giving the company a specified band of continuous power which would equal the estimated primary power of the company's system, plus one-half of the additional power made available at the company's plants through use of Fontana storage, plus the prime equivalent of the company's secondary power. This estimated total would be adjusted annually in cash or in kilowatt-hours exchange for any difference between the amount so delivered to the company and the actual amount available, as determined by calculating the energy available from that particular year's stream flow.

We pointed out that arrangement did not take into account the additional advantages of integrated operation of the two systems. Mr. Growdon suggested that the company be permitted to retain all of the benefits obtained at its downstream plants from Fontana storage in return for permitting the Authority's operators to have complete control of dispatching of water from the company's reservoirs. Under this plan the company would be given assurances of a certain band of continuous power, but it would be actually entitled to receive no more energy than could be generated at the company's stations, adjusted in terms of primary power.

Mr. Growdon agreed to discuss these general proposals with his people in Pittsburgh and be prepared to give us a final answer on Thursday of next week. I am to call him from Atlanta on Wednesday to arrange the next conference.

JAK: RB.

MAY 27, 1941.

MR. WILLIAM S. KNUDSEN,

MR. SIDNEY HILLMAN,

*Office of Production Management,*

*Washington, D. C.*

DEAR SIR: Pursuant to a request made by Mr. A. I. Henderson of Mr. J. A. Krug, the Authority's Manager of Power, at a conference in Washington on May 23, we are outlining herein what the Authority is able to do in meeting the national-defense power requirements which are expected to develop in this area during the next three years. We are taking the liberty of addressing this to you directly, as we understand Mr. Henderson will be away for the next few weeks.

Our staff gained the impression that Mr. Henderson agrees that aluminum production in the Tennessee Valley region during this period of emergency should not be dependent upon secondary hydroelectric power, and that he planned to recommend that the Aluminum Company of America and the Reynolds Metals Company proceed at once to obtain the primary power required

for capacity operation of the existing aluminum plants and the expansion program now under way. We understand that over 180,000 kilowatts of additional continuous power is necessary to permit capacity operation of the aluminum plants now in existence or under construction at Alcoa, Tennessee, and Lister, Alabama. The program you have recommended for additional aluminum production in the Tennessee Valley region, including alumina and cryolite, will add another 215,000 kilowatts to this figure, making the increased requirements for aluminum, 395,000 kilowatts. These figures are exclusive of transmission losses, which should bring the total to approximately 450,000 kilowatts.

Our discussions with members of your staff, the War Department, and the Federal Power Commission indicates to us that, in addition to providing for power requirements which can now be definitely foreseen, there should be established a power reserve in the eastern half of the United States in the order of 500,000 to 1,000,000 kilowatts for national-defense requirements which are certain to develop in the future, and that the Authority should assume responsibility for a part of this reserve. Impending shortages of ferro silicon, phosphorus, artificial rubber, and other materials essential to national defense requiring large blocks of power for their production would seem to justify such a reserve. In view of the strong interconnection between the Authority's system and other major systems, any power reserve on the Authority's system would be available at almost any point in the Southeast. Assuming that the Authority would be expected to provide a minimum of 250,000 kilowatts of such reserve, the total additional power needed on the Authority's system would be about 700,000 kilowatts. The program we have proposed would supply this amount promptly and in the most economical manner possible under the circumstances. While these projects would be constructed for national-defense purposes, they would fit in logically with the integrated development of the power resources of the region.

The following is a summary of this program, which includes a combination of steam and hydroelectric plants. The first units would be completed in January of 1943 and the last project in July of 1944. We have outlined a program which involves the installation of 1,100,000 kilowatts to produce approximately 700,000 kilowatts of continuous power. Exclusive of the Wolf Creek project which has been authorized by Congress for construction by the Army Engineers, the estimated cost is \$210,000,000, including transmission facilities, of which about \$85,000,000 would be required during the next fiscal year.

*Summary of supplemental power program in addition to projects now authorized and the Hiwassee projects on which authorization is now pending<sup>1</sup>*

	Date available <sup>1</sup>	Installed capacity	Continuous power added to system	Estimated cost
		<i>Kilowatts</i>	<i>Kilowatts</i>	
Units added at existing hydro plants <sup>2</sup> .....	Jan. 1943.....	115,000	110,000	\$7,200,000
Unit D at Watts Bar Steam Plant.....	Jan. 1943.....	60,000	50,000	5,000,000
New steam plant—2 units.....	Apr. 1943.....	120,000	100,000	11,500,000
Units added at existing hydro plants.....	Apr. 1943.....	80,000	-----	5,000,000
New steam plant—3rd unit.....	July 1943.....	60,000	50,000	5,000,000
Hydro Project on South Fork of Holston River.....	July 1943.....	75,000	45,000	23,000,000
Hydro Project on Watauga River.....	July 1943.....	60,000	45,000	25,000,000
Hydro Project on Franch Broad River.....	July 1943.....	70,000	100,000	{ 32,000,000
Units added at existing hydro plants.....	July 1943.....	50,000		
Ft. Loudoun extension and additional units.....	Oct. 1943.....	60,000	20,000	14,100,000
Fontana Project.....	July 1944.....	200,000	<sup>3</sup> 165,000	50,000,000
Reduction of off-peak energy obtained from other systems.....	July 1944.....	-----	-60,000	-----
Necessary transmission facilities.....	(As needed).....	-----	-----	26,500,000
Subtotal—TVA Program.....		950,000	625,000	210,000,000
Wolf Creek Project (Army Engineers).....	Apr. 1944.....	150,000	75,000	50,000,000
		1,100,000	700,000	260,000,000

<sup>1</sup> Assuming immediate Congressional approval.

<sup>2</sup> Including off-peak energy obtained from other systems.

<sup>3</sup> Includes power added at Aluminum Company's plants. Additional capacity will be required at the Company's Cheoah plant.

These projects are in addition to the Fort Loudoun and Kentucky dams and the other projects now authorized, and to the Hiwassee program which you recently recommended to the Bureau of the Budget. The completion at the earliest possible dates of the projects now under construction, together with the Hiwassee projects is essential for the Authority's regular load and for national-defense requirements other than those mentioned above.

You will note that one of the projects we have included in the above program is the Wolf Creek project, which is located on the Cumberland River in Kentucky. This project has been recommended for construction by the War Department and has been authorized by Congress as a flood-control project. This project could be accelerated and expanded to include power facilities. If operated in conjunction with the Authority's power system, it would contribute a substantial block of power to the program outlined above. In view of its usefulness for power purposes, we think that it would be a mistake to consider it as exclusively a flood-control project.

An important part of the proposed program is the so-called Fontana project, the site of which is now owned by the Aluminum Company of America and which is to be located upstream from two of the Aluminum Company's plants. In order to develop this project expeditiously and without resort to litigation, an immediate agreement is necessary. We are taking steps at once to negotiate such an agreement and will advise the Office of Production Management if there is any reason to believe that the Fontana project cannot be included in this program for lack of such an agreement.

The estimated completion dates for these projects are based on the assumption that they will be accorded such materials priorities as may be necessary. Mr. Henderson has assured us that, in the light of the aluminum situation, he would recommend the assignment of such priorities. All estimates of the completion dates are predicated on immediate congressional approval.

The foregoing program was developed as a result of conferences with officials of the Office of Production Management, the War Department, and the Federal Power Commission. Power deficiencies in the Southeast are now of a critical nature and have already led to the curtailment of power supply for civilian purposes in order to avoid drastic injury to the national-defense program. The program we have outlined will, we believe, meet the problem of power supply for national-defense purposes in the Southeast as now projected and avoid the possibility of a recurrence of power-supply deficiencies in this area in the future. This program is based upon present views of national-defense officials on the production of materials required for national defense. The power-supply program must, of course, be adjusted to the program for the production of national-defense materials. Any expansion of the program for the production of materials would require additional power supply; any reduction in this projected power-supply program would require a reduction in the national-defense procurement program.

Should you require any additional information, we should be glad to send our engineers to confer with you. We are willing to cooperate in every way in presenting the situation to the Bureau of the Budget and to Congress.

Very truly yours,

TENNESSEE VALLEY AUTHORITY,  
HARCOURT A. MORGAN,  
*Chairman of the Board.*

---

[Copy]

MAY 26, 1941.

Mr. I. W. WILSON,  
*Aluminum Company of America, Pittsburgh, Pa.:*

Pursuant to a request from the Office of Production Management and the War Department, the Authority is developing comprehensive plans for providing additional power capacity in the southeastern region for national defense purposes, including the present and future requirements of the Aluminum Company. It is essential that you advise us immediately whether you are willing to cooperate in the construction of the Fontana Project by the Authority and, if so, on what terms.

J. A. KRUG,  
*Manager of Power.*

JAK:RB



[Copy of telegram]

MAY 26.

J. A. KRUG,

*Manager of Power, T. V. A., Knoxville, Tenn.*

Replying your telegram Aluminum Company will welcome opportunity to cooperate to the end that Authority construct and own Fontana project with understanding and agreement for operation which will properly safeguard our downstream power developments and the other rights to which we are reasonably entitled.

I. W. WILSON,

*Aluminum Company of America, Pittsburgh, Penn.*

[Copy]

APRIL 1, 1941.

Mr. C. W. KELLOGG,

*Chief Consultant, Heat, Light, and Power,**Office of Production Management, Washington, D. C.*

DEAR MR. KELLOGG: Following our joint conversation with Mr. Henderson, with respect to additional power supply in the Tennessee Valley region, you asked for a summary statement of what the Authority can do to increase power supply over scheduled installations and of what we can foresee as to national-defense power needs in this area.

As the quickest and most practical way of obtaining additional power on the T. V. A. system, several developments can be built on the Hiwassee River and its tributary, the Ocoee River. These developments would include a 27,000-kw. hydroelectric plant on the Ocoee River, a 75,000-kw. hydroelectric plant on the Hiwassee River below Hiwassee Dam, and the development of additional storage in the Hiwassee drainage area upstream from Hiwassee Dam. To make use of this storage the second 60,000-kw. generating unit at Hiwassee would be installed and an additional generating unit of approximately 30,000 kw. would be installed at one of the existing generating stations on the main river. This program would add about 116,000 kw. of continuous power to the T. V. A. system and would cost about \$42,000,000 exclusive of transmission lines. The total increase in effective system peak capacity would be about 212,000 kw., of which about 20,000 kw. would result from improved operating conditions at the existing plants on the Ocoee River. This development requires a relatively small amount of heavy equipment, which should help to minimize procurement difficulties. If authorization is secured promptly, this generating capacity could be in operation by the late fall of 1942 unless unusual difficulties are encountered.

There are also two favorable storage sites in the Holston basin; one, a site on the South Fork of the Holston River near Bristol, Tennessee, requiring an installed capacity of 75,000 kw., and the second, a site on the Watauga River east of Elizabethton, Tennessee, where an installed capacity of 60,000 kw. would be required. These two developments would increase the continuous power on the T. V. A. system by about 90,000 kw. after the first complete filling and would cost about \$44,000,000. If started this summer, construction of both could be completed under reasonably favorable conditions by the fall of 1943.

A major storage project could be developed at the Fontana site on the upper Little Tennessee River, in North Carolina, where it has been proposed to construct a dam over 400 feet high with installed generating capacity of 150,000 kw. This dam, together with an additional 150,000 kw. of generating capacity downstream, is estimated to cost \$54,000,000; it would increase by 155,000 kw. the continuous power capacity of the combined T. V. A. and Aluminum Company systems. Owing to its unusual dimensions, the procurement problem, especially for large equipment, would be a difficult one. If conditions were favorable, however, this development could be completed within three years. It should be noted that the Fontana site is owned by the Aluminum Company, which also owns two hydroelectric plants below the site. We do not believe construction should be begun until an agreement has been reached with the Company covering both the acquisition of the site and the method of integrating the operation of the dam, when completed, with the systems of the Company and the Authority. The Company has indicated a willingness to cooperate in making possible early construction of the project by the Authority.

Under an interchange arrangement which has been under discussion with the American Gas and Electric Company, a substantial increase in primary power

could be made available on the Authority's system and the Company's system by constructing a high-capacity transmission line between the two systems and by installing additional units at the Authority's existing generating stations on the Tennessee River. This plan contemplates transmitting off-peak steam-generated energy from the Company's system to the Authority's system and the return of a part of this energy to the Company during peak-load hours. The amount of primary energy which could be made available in this manner would depend upon the capacity of the interconnection and the capacity of the additional generating units installed at the Authority's plants.

Assuming additional installation of 200,000 kw. of hydro-generating capacity for this purpose at the Authority's existing plants, the net increase in primary power for the combined systems would be approximately 100,000 kw. This estimate, however, is based upon studies of the load characteristics of the two systems made before much of the present national-defense loads had been added and is subject to confirmation on the basis of studies now under way of the present load characteristics. The estimated cost of the generating facilities required to make this project effective would be about \$15,000,000 and the interconnecting transmission facilities would cost around \$4,000,000 to \$5,000,000. The completion date would depend primarily upon production schedules for the large units needed in the Authority's main-river plants, but in terms of present deliveries should not exceed eighteen months. This assumes, however, that a satisfactory interchange agreement can be worked out at an early date with the American Gas and Electric Company.

The following is a tabular summary of these projects. No totals have been shown because some of the costs are partially overlapping, and also because no allowance has been made for the transmission lines and other facilities needed to tie these projects into the Authority's system and deliver the power to load centers.

Projects	Installed capacity	Continuous power	Approximate cost	Time required for completion <sup>1</sup>
Hiwassee-Ocoee Development <sup>2</sup> .....	192, 000 kw.	116, 000 kw.	\$42, 000, 000	18 months.
Holston Development <sup>2</sup> .....	135, 000 kw.	90, 000 kw.	44, 000, 000	24 months.
Fontana Development <sup>2</sup> .....	300, 000 kw.	155, 000 kw.	54, 000, 000	36 months.
Interchange Arrangement .....	200, 000 kw.	100, 000 kw.	20, 000, 000	18 months.

<sup>1</sup> Estimated period of construction assumes no abnormal procurement difficulties.

<sup>2</sup> Includes capacity to be installed at existing plants to utilize additional storage.

It should be noted that in addition to their value for defense power purposes, these projects would also be a part of the Authority's long-time multi-purpose system operation.

As to future power requirements, we cannot estimate definitely the total national-defense loads which may be expected to develop within the Authority's service area during the next two or three years, but recent events indicate that there will be large additional demands. We understand that, in recognition of the fact that a period of at least 18 months is required to provide power facilities, your office may wish to outline at this time a comprehensive program to meet the national-defense-power requirements which you expect will develop in this area. We agree with you and Mr. Henderson that the country's defense program should not be jeopardized by a power shortage and that it would be far better to provide too much generating capacity rather than run the risk of a serious deficiency. Furthermore, with the interconnections which the Authority now has, any surplus in this region could be transmitted to adjoining regions in case of emergency.

The demand for power in the Authority's system has continued to increase at a rapid rate since the hearing before the Senate Appropriations Committee on February 19, and indications are that the period of greatest activity is just beginning. In the last few days the Aluminum Company of America has inquired as to whether the Authority would be able to supply an additional 110,000 kw. for expanded aluminum production at Alcoa, Tennessee. We have advised the Company that 35,000 kw. of this amount can be obtained from capacity already authorized by deferment of other commitments. The Authority cannot, however, supply the balance and meet its other service requirements without constructing additional generating facilities.

So that you may have available the latest information at our disposal we are outlining the other requests for power which we have received since the hearing of February 19. The Monsanto Chemical Company, which operates a large phosphate plant near Columbia, Tennessee, has requested an additional 10,000 kw. of power for its phosphate operations and 10,000 to 20,000 kw. more for the production of stainless steel. The General Motors Corporation has reopened the old Fisher Body Plant at Memphis to manufacture aircraft parts, with an expected power requirement of 4,000 kw. The Bogle Chemical Company is constructing a new plant at Memphis, which will require 2,000 kw. We are now advised that the Wolf Creek Ordnance Plant, near Milan, Tennessee, will require an average of 6,500 kw. rather than the 4,000 kw. originally estimated. Southern Ferro Alloys, at Chattanooga, will require an additional 5,000 kw. rather than the 2,500 kw. originally estimated. Other small national-defense loads developing at Chattanooga, including the Combustion Engineering Company, Signal Mountain Cement Company, Tennessee Products Corporation, and the Southern Chemical Cotton Company, will require a total of 6,000 kw. While we have no direct information, we have been informed by city officials at Nashville that a further expansion is contemplated at the Vultee Aircraft Corporation. The additional power requirements for this plant are unknown.

We have had a request from the S. A. Moulton Corporation of New York as to prospects for 100,000 kw. for a chemical plant. We have no information concerning this corporation which would permit us to judge concerning the probability of this load materializing. We have also had an inquiry from Allied Engineers and Architects concerning 4,500 kw. for a plant in western Tennessee.

As a partial off-set to the increased requirements outlined above, we are now advised that the DuPont neoprene plant under consideration for Sheffield, Alabama, will not be located within the Authority's service area at this time. This will reduce projected requirements by 8,000 kw in 1942 and an additional 8,000 kw in 1943. It seems apparent to us, however, that if neoprene is to be required in any substantial quantity in the national defense program, additional generating capacity will have to be installed for this purpose wherever the plant may be located east of the Rocky Mountains. The Electro Metallurgical Company has informed us that it is still actively considering the expansion of its Sheffield plant, and it appears likely that this will proceed regardless of the decision of the DuPont Company to locate the proposed synthetic rubber plant elsewhere.

I hope this letter will help to give you a more up-to-date picture of what the Authority can do. We are not seeking authorization to build any of the projects mentioned herein, but if those in charge of the defense program believe an increased power supply is necessary for national defense, we will cooperate in securing authorization and in expediting the completion of whatever program is authorized. By reason of the location of many of these projects above existing dams, and because TVA has a seasoned construction force, we believe increased power can be provided in the Tennessee Valley with maximum speed and economy.

Please let us know as soon as we can be of any further help to you.

Very truly yours,

TENNESSEE VALLEY AUTHORITY,  
J. A. KRUG, *Manager of Power.*

JAK:osg.

CC: Dr. H. A. Morgan.  
Mr. D. E. Lilienthal.  
Mr. J. P. Pope.  
Mr. Gordon R. Clapp.  
Mr. Paul W. Ager.  
Mr. W. C. Fitts.  
Mr. T. B. Parker.  
Miss Marguerite Owen.



[Copy]

OFFICE OF PRODUCTION MANAGEMENT,  
SOCIAL SECURITY BUILDING,  
Washington, D. C., March 8, 1941.

Mr. HARCOURT A. MORGAN,  
Chairman, Board of Directors, Tennessee Valley Authority,  
Knoxville, Tenn.

## FONTANA PROJECT

DEAR SIR: Your letter of February 24, 1941, to Mr. Knudsen and Mr. Hillman has been referred to the Materials Branch.

We understand your desire that whoever develops the Fontana Project, it should be operated as a coordinated part of the general Tennessee River system. The Aluminum Company of America on its part is unwilling to construct the Fontana development on the basis of full-time Federal license. Our primary interest is in obtaining the electrical output of the development for the production of aluminum in connection with the national defense.

We are advised by the Aluminum Company of America that it would be prepared to discuss an arrangement whereby it would turn over its investment in the Fontana development to the Tennessee Valley Authority at cost plus carrying charges, if the Authority would construct the project promptly and would sell the power to the Aluminum Company. This would make the Fontana development a part of the coordinated Tennessee Valley System.

Will you please let us know if this solution of the problem would meet with your approval?

Very truly yours,

A. I. HENDERSON,  
Assistant Chief, Materials Branch.

CC: Mr. Lilienthal.  
Mr. Pope.  
Mr. Clapp.  
Mr. Krug.  
Mr. Fitts.  
Mr. Pitts.  
Col. Parker.

[Copy]

ALUMINUM COMPANY OF AMERICA,  
230 Park Avenue, New York, N. Y., March 7, 1941.

Honorable HARCOURT A. MORGAN,  
Chairman, Tennessee Valley Authority, Knoxville, Tennessee.

DEAR MR. MORGAN: Thank you so much for your letter of the 24th ultimo in which you have been good enough to set forth the Authority's views as to the possibility of the construction of the Fontana Dam with funds obtained from the Federal Government.

We want to assure you that our Company stands ready to cooperate in every reasonable way with the proper governmental authorities in working out the problems involved in this matter. We hope you will keep us advised of any developments that we should know about and we shall not hesitate to get in touch with you or Mr. Krug in case we feel that there is anything we should discuss with you.

Very truly yours,

I. W. WILSON, Vice President.

Address: #801 Gulf Building, Pittsburgh, Pa.

CC: Mr. Lilienthal.  
Mr. Pope.  
Mr. Clapp.  
Mr. Krug.  
Mr. Fitts.  
Col. Parker.  
Mr. Ager.  
Miss Owen.

[Copy]

OFFICE OF PRODUCTION MANAGEMENT,  
SOCIAL SECURITY BUILDING,  
Washington, D. C., March 4, 1941.

HON. HARCOURT A. MORGAN,  
*Chairman of the Board of Directors,  
Tennessee Valley Authority, Knoxville, Tennessee.*

MY DEAR MR. MORGAN: Thank you very much for your letter of February 24, addressed jointly to the Director General and the Associate Director General of the Office of Production Management, regarding the construction of the Fontana Dam on the Little Tennessee River.

I will be glad to look into the whole question and write to you in a very few days.

Very cordially yours,

SIDNEY HILLMAN.

CC: Mr. Lilienthal.

Mr. Pope.

Mr. Clapp.

Mr. Krug.

Mr. Fitts.

Mr. Ager.

Col. Parker.

Miss Owen.

---

[Copy]

FEBRUARY 24, 1941.

MR. WILLIAM S. KNUDSEN,  
*Director General,*

MR. SIDNEY HILLMAN,  
*Associate Director General,  
Office of Production Management, Washington, D. C.*

GENTLEMEN: We have been advised by the Aluminum Company of America that it is considering applying to the Advisory Commission to the Council of National Defense for approval of government financing under national-defense legislation for the construction of the Fontana Dam on the Little Tennessee River. In response to its request for our views on this matter, we have advised the company that while we approved the construction of the project by the company with its own funds, we would vigorously oppose the use of government funds for this purpose. Since the company's proposal raises a serious issue of policy, we think it proper to inform you of our position, and of the reasons therefor.

A few months ago the Aluminum Company advised us of its desire to build the Fontana Dam as a part of the company's expansion program and suggested that an agreement be entered into whereby the operation of this project and the company's other projects on the Little Tennessee River would be closely coordinated with the system of the Authority. This proposal received prompt and sympathetic consideration. After intensive negotiations an agreement was reached, and a formal contract was executed on October 17, 1940.

The company thereupon filed a declaration of intention with the Federal Power Commission and applied for exemption from the license requirements of the Federal Power Act. The Commission held that a license is necessary for this project. To this view the company objected, and within the last few days the company's officials have stated to us that they are unwilling to invest company funds under federal license. They have suggested instead the possibility that the project be constructed by the company with funds provided by the Federal Government. While these plans are not definite as to detail, they are based upon the assumption that the Government would bear the financial risk. It is this proposal which has been submitted for our views.

We have no objection to the construction of the Fontana Dam by the company if construction is to be at the company's risk, as originally proposed. The contract of October 17, 1940, would facilitate such construction and permit the company to share the maximum benefits obtainable from the integration of the Fontana project with the projects of the Authority. The financing of the project by the Federal Government, however, we regard as entirely inconsistent with the Federal Government's policies respecting the development of water powers. The

Fontana Dam is not only a major power project, it is also of the greatest importance in the program of unified development of the Tennessee River system. If constructed with government funds, the project should, in our view, be devoted to the public benefit and would be constructed and operated by the Federal Government.

An original of this same letter has also been addressed to Mr. Knudsen.

Very truly yours,

HARCOURT A. MORGAN,  
*Chairman of the Board of Directors.*

JCS: JAK: BS.

[Copy]

FEBRUARY 24, 1941.

Mr. I. W. WILSON,  
*Aluminum Company of America,  
Pittsburgh, Pennsylvania.*

DEAR Mr. WILSON: The Authority's Board has considered your request for our views relative to your proposal to construct the Fontana Dam with funds obtained from the Federal Government under an arrangement which would require the Government to underwrite the financial risks. We could not approve such an arrangement.

At the time that the company and the Authority negotiated the agreement of October 17, 1940, providing for the closest coordination of our respective systems in order to facilitate your construction of the dam and the realization of the maximum benefits from its operation, we understood that it was the company's intention to assume the financial risks involved. You now say the company is unwilling to invest its capital in the project under the terms of a license to be granted under the Federal Power Act, and that Government financing provides the only alternative.

We feel that construction of the project for the company's benefit at Government risk would violate the established policy of the Government in dealing with its water powers. We are entirely willing to continue our cooperation with the company in constructing and operating the project if it is to be privately financed, but if the Government is to bear the risk, we believe the project should be constructed by the Government and operated for public benefit.

Since we believe that a serious question of policy is involved, we are bringing our views to the attention of the Advisory Commission to the Council of National Defense.

Very truly yours,

HARCOURT A. MORGAN,  
*Chairman of the Board.*

JCS&JAK: MW.  
CC: Mr. D. E. Lilienthal.  
Mr. James P. Pope.  
Mr. Gordon R. Clapp.  
Mr. J. A. Krug.  
Mr. W. C. Fitts, Jr.  
Col. T. B. Parker.  
Mr. P. W. Ager.  
Miss Marguerite Owen.



## SUPPLEMENTAL DATA

---

The following documents, submitted to the committee by Mr. R. J. Gaudy subsequent to his appearance, are included at this point in connection with his testimony, *supra*, p. 871 et seq.

[Submitted by R. J. Gaudy, president, Standard Aluminum and Alloy Co.]

### MORE ALUMINUM IS NEEDED

The required output rate of the metal is forecast to be three times the present rate, which is almost double the projected and promised rate by the end of 1942.

All those prepared and able to produce metal should be aided up to their full proportionate ability to take care of the shortage, and the problem would be solved.

### NEEDED ALUMINUM CAN BE HAD

There is plenty of domestic raw material in the United States of America which is 25 percent and over in metal-bearing value. This company controls processes by which this ore can be economically purified and be reduced to metal by electrolysis.

The ore, the process reagent lime, the natural gas for heat, power generation, and carbon supply are all available at one plant site in central Arkansas in quantity for many millions of tons of metal production. Water, gas, and railroad lines lead to or through this company's plant site. The position of this producer is fully protected by exclusive licenses and contracts covering all steps from ore in place to metal on cars.

The operating economy of such a completely integrated industry points to a metal cost which is apparent and unbeatable.

### POSTPONEMENT IS A LIABILITY TO DEFENSE PRODUCTION

---

#### DEFENSE ALUMINUM-PRODUCTION PROGRAM OF THE STANDARD ALUMINUM AND ALLOY COMPANY

This aluminum-production enterprise is committed to the unique policy that, being the most plentiful metal in nature and requiring principally ore, power, and labor, should in the United States of America, where all these are abundant, aluminum may be had (a) in any quantity required, (b) of highest quality, and (c) more cheaply than anywhere else on earth.

This company has spent years of continuous ingenious effort in assembling the technology which will make quality, abundance, and economy the justified position of aluminum where because of monopoly and its policy, lethargy, scarcity, and controlled price has been the history.

No producer has done as little in the improved mechanization of any base-metal-production layout as has been done in the domestic aluminum industry (up to now) to make for better availability, quality, or price.

*Metal market.*—With properly comparable price to other metals the construction and commercial demand for aluminum would logically exceed 750,000 tons annually in the United States of America in peacetime.

*Survival in price war.*—With operating cost of production (than which there can be no lower) this supplier of aluminum can comfortably withstand the ravages of any peacetime price war, with or without present protective tariff.

### REQUIREMENTS

The requisites to the production of aluminum within an assembled plant (ready to deliver) are supplies of:

1. An aluminous earth containing aluminum.
2. A chemical for isolating the aluminum oxide from its impurities.

3. Waste heat for drying the earth or ore of its superficial moisture.
  4. Fuel and water for processing the source material and separating out the impurities and combined water.
  5. Electric power or the fuel with which to produce it.
  6. High quality carbon with an admixture of asphaltic sticker.
  7. Labor to attend and control the uniformity and continuity of operation.
  8. Transportation equipment and connections to take the finished metal away.
- A properly located plant will require no operating supplies which are not on the ground or piped in.

Incoming tonnage will be limited solely to repair materials and replacement equipment.

Providence arranged such a location in this country and this company has availed itself of it.

This spot is in central Arkansas (Saline County, east of Benton).

*Industrialization of agriculture.*—Aluminum production is a 24-hour 7-day operation. The extra labor turns manned permit of short-week duty on plant site. This permits time periods for subsistence farming by employees.

This location is central for metal distribution to users and remanufacturers and is removed from national boundaries or vulnerable water frontage.

All of the requisites for the supply of many million metal-tons lie in or are now piped into an area, including plant, the complete boundary of which is within a short walking distance.

The complete enterprise from raw material in the ground to virgin metal on cars occupies a group of plant units built on one site. They are, functionally: (A) Ore-purification plant, (B) electrode forming and firing plant, (C) power plant, (D) metal-reduction plant using output of plants A, B, and C and delivering bulk metal.

The economy of this integration is obvious by comparison with the far-flung gathering and distribution problem of the present unimproved technology controlling current United States expansion by all others.

*Program size.*—Plans are made for an annual capacity of 125,000,000 pounds (62,500 tons) unit expansion in sections of 15,000 annual tons make simple construction and operating additions.

#### SCOPE OF CONSTRUCTION PROGRAM

The construction proceeds will build:

1. Bauxite mine and limestone quarry.
2. Typical cement plant to prepare cement high in calcium aluminate.
3. Wet plant for recovering alumina from aluminate solution and finishing to anhydrous  $Al_2O_3$ .
4. Gas fired power plant.
5. Natural gas cracking plant for making granular electrode carbon, ash-free, and hard-grained from natural gas supply.
6. Electrode making plant.
7. Electrolytic aluminum reduction plant units (each to deliver 20,000 minimum annual metal tons.)
8. Site services and trackage with incoming siding from the Rock Island adjacent mainline.
9. Incoming pipelines for natural gas and process water bought under long term contracts.
10. Plant site acquisition upon which plant units are built.
11. Structures on plant site to handle: (a) Labor accounting and office staff for costs and records; (b) Laboratory and control testing for oxide and metal; (c) Storage of repair refractories and maintenance supplies; (d) Metal storage and loading shed for outgoing carloading of alumina or aluminum sold.

The financing proceeds also provide: (a) Cell charging and material for metal produced during construction, sales proceeds of which return to financier until plant is accepted as complete; (b) Operations of mine and oxide plant until plant is completed for take-over.

The capital allowance is the peak of total moneys drawn down before occupancy of the plant, in full operation.

#### PROVIDED BY COMPANY, OUTSIDE OF PROCEEDS OF FINANCING

A. Acquisition of 20,000,000 tons of mine-run bauxite on which titles are empounded with trustee, and which ore may be mined by payment only of contract price of finished alumina on oxide weight processed from severed ore.

B. Acquisition of limestone full access to 20,000,000 tons of local limestone which is held under contract to be paid for on a pure lime basis on the price agreed per calcium carbonate net ton as the lime is used in the process.

C. Down payments or carrying charges on a second bauxite acreage containing another 20,000,000 tons of bauxite reserve or a second 50-year ore reserve.

D. No payments except oxide tonnage royalty for the exclusive license under the United States patents for the oxide process to extract alumina from high silica bauxite.

E. License to use Royster kilns on manufacturing alumina for firing, calcining, dehydrating, raw materials, materials in process of finished products.

F. License for the exclusive right to build and use Gilchrist settlers in the aluminum industry in all functions of settling, decanting and separating solids from solutions wherever required by the treatment of solutions in purifying alumina.

G. The license for North America to build into and use any of the improvements patented in the United States of America by Louis Ferrand which may be tried out and selected for use wherein each such improvement is economically advantageous for adoption and use of electrolysis.

H. License or contract to crack natural gas for the production and use (though not resale) of prehard granular carbon for the making of carbon furnace linings and electrodes for the aluminum enterprise.

*Financing proceeds.*—At the size (planned) of 62,500 tons, the plant with its own gas power generating units would require financing proceeds of \$35,000,000. This is \$560 per annual metal ton, with owned power.

*Rate of liquidation.*—At the assured gross operating spread of 10 cents per metal pound produced the financing could (including construction period) be amortized about twice the rate required for 5-year redemption.

#### STANDARD ALUMINUM AND ALLOY COMPANY

R. J. Gaudy, President. Chicago, Illinois

#### TECHNICAL EMANCIPATION OF ALUMINUM PRODUCTION

#### PRESENT SHACKLES

Under distinctive modernization of standard

As per practice of United States producers up to now

1. Domestic high silica ore used.  
2. Ore supply abundant. Arkansas field contains a hundred million tons, economic metal value, remaining Southern States, several times more.

3. Oxide plant site on land abutting 25 years' supply.

4. Run-of-mine ore used. Mined by power shovel.

5. Slope mine allows continual all-weather operation.

6. Local limestone (the chemical reagent). More plentiful in plant area.

7. First stage is a typical cement plant. (Wet process.)

8. Waste heat from cement for drying ore.

9. Prepared oxide is silica free; important to metal quality.

10. Waste gas carbonation makes definite and short process. Through put time—hours.

11. Purity of alumina attained 99.98+ percent.

12. Finished alumina is reduced to metal on the site of ore mining.

Dependence upon imported ore.  
Can process only low silica ore competitively. Reserve exhausting, have imported rock for years.

Fleet of ships, barges, and rail shipping to deliver ore to processing plants.

Hand select mining demanded, bulk of ore left behind.

Open mines limited by rain and wind-blown dirt.

Concentrated caustic soda is the solvent and is lost by silica presence.

Steam plant needed to heat many autoclaves.

Separate drying plant at each mining location before loading for shipment.

Bayer oxide not silica free inherently.

Product formation, by seeding solutions, slows process to days, not hours.

Oxide quoted 98.958 percent pure, neglecting soda 0.6 percent and water 0.4 percent ultimate is 99.955 percent.

Oxide is shipped by rail an average of 1,000 miles to point of use in specially lined containers.



## TECHNICAL EMANCIPATION OF ALUMINUM PRODUCTION

## PRESENT SHACKLES

13. Electrode purity. Assured and important.

14. Hard pure granular carbon produced by decomposition of natural-gas supply to plant. Distilled asphalt for adhesive.

15. Horizontal billet electrodes with small conductor and power loss. Loss in percent butts—low.

16. Gas fired (fuel and cell) counter-flow continuous muffle recuperative electrode firing furnace.

17. Generate own power from natural gas delivered to plant site.

18. Use closed-top cell with reduced power in-put direct saving of both power plant capital and metal operating cost.

19. Cover on cell reduces heat generation to supply losses and lowers flux bath temperature 100° C.

20. Moving electrodes free gas pockets and distribute current more uniformly over hearth.

21. Lower voltage and lower bath temperature prevent decomposition of cryolite.

22. Reduction cell of 50,000 amperes capacity and low voltage much more efficient in power consumed.

23. Simplified power system allows individual cell power supply. Establishes independent cell operating control.

24. D. C. impulses enter at 24 contacts of 2,000 amperes. Energy brat as 13,200 volt, A. C. 3 ph. to within 2 feet of D. C. electrode contact. Items delivery 30 days.

25. Each cell can be put into or taken out of service individually.

26. Low-cost, high-purity, centralized, fully protected, and fully domestic production attained.

27. This metal may be homogenized to enhance characteristics without alloying.

Ash impurities contaminate metal.

Scrap petroleum coke used with low but random impurities as ash.

Multiple stick electrodes or an unfired mass. Multiple adjustment and high butt loss or extra electric loss for firing.

Open pit, fuel-fired, individually loaded, furnace an industrial hazard.

Bulk of power from remote Federal hydro plants with shut-down liability of transmission lines.

Unimproved practice on most costly item of production.

Open-cell excess temperature degrades metal by superheating.

A localized current with stationary electrodes creates gas pockets, bath turbulence, and cell polarization.

Continuous make-up of cryolite imposes added cost and attention to flux composition.

Power converting method has listed cell size from 18,000–20,000 amperes in various plants.

Series of cells on one power supply calls for hazard of high current, high voltage concentration.

D. C. single bus circuit involves 50 or 100 cells per circuit, with one cell carrying trouble to all. Calls for delivery are rectifiers.

Cell must be put into service or cut out with full pot-house series involved.

Nationally integrated industry and uniform product not sought by any effort in modernizing earlier technique.

Metal requires alloying to improve certain characteristics at compromise of others.

## ORGANIZATION AND SPEED

## BOTTLENECKS

The engineers and constructors related corporate-wise to this undertaking have complete knowledge of the details and have put out more work in less than this schedule time repeatedly in the past on other industries.

There are no high capacity units of machinery. All requirements have been explored and can now be delivered and installed and be in service for first metal within one year and full capacity in 15 months.

Present and planned expansion of aluminum capacity prior to this enterprise all follows the unmodernized plan. Special-purpose equipment crowds the few producers. Modernized aluminum production evades above bottlenecks in delivery.

*Products shipped.*—Bulk aluminum in pigs, slabs, ingots, or billets as allocated by requirements. Cell-run grades and reprocessed metal will be sold to users and independent remanufacturers as specified.

Aluminum carries more load, transmits more heat, carries more electricity per pound than any other metal.

It also fulfills more requirements in present industrial production.

*Bauxite fallacy.*—An example:

Two bodies of ore-----	A	B
Both contain alumina-----	54%	54%
Metal bearing value-----	Identical	
Impurities include:		
Silica-----	2%	12%
Iron-----	12%	2%

Cost to purify is similar. It is a matter of chosen chemistry. But note: "A" is to date almost depleted in the U. S. A. while "B" is abundant and widespread.

"A" is selectively, hand mined and imported from South America, using fleet of ships and needing more.

"B" is untouched and disqualified although abundant.

A. L. C. O. A. persists on using "A."

S. A. & A. Co. proposes to use "B," using ore on plant site.

#### STANDARD ALUMINUM AND ALLOY COMPANY

#### UNITED STATES BUREAU OF MINES CHECK TEST OF ALUMINA PURIFICATION PROCESS

The above company is licensed to produce alumina under the United States letters patent covering the recently developed technique of Jean Charles Seailles.

International hostilities make observation of plant operations impossible. For the protection of the projector, the assurance of nationally domestic aluminum metal supply, and the protection of the valid position of self liquidating financial support solicited from Federal sources, the Bureau of Mines is conducting a technical exploratory and practical operating test of the process.

The technique embraces the purification of high quality alumina from run-of-mine, high silica, domestic, bauxites or economically high alumina bearing earths such as clay.

The first stage of the operation comprises firing the analyzed raw material with a definite proportion of country limestone (also analyzed for lime content) to produce the equivalent of a high-grade quick-setting cement, the leaching of which puts into solution only the pure aluminate, from which the alumina is subsequently derived.

Upon this determination the financing of the first step of construction could be authorized; as the undertaking would be adequately protected as to self-liquidation as a cement producer ad interim.

The segregation of the alumina from the calcium aluminate solution is possible by several methods, and the testing work from this point determines the relative economy of the procedure proposed.

The following documents are included at this point in connection with testimony of Mr. Frank B. Cliffe, *supra*, p. 764 et seq.

#### EXHIBIT A—DETAILS OF REDUCTION IN ALUMINUM USED FOR CIVILIAN PURPOSES BY (A) REYNOLDS METALS CO., AND (B) ALUMINUM CO. OF AMERICA (FABRICATING DEPARTMENTS)

According to information furnished to me by the respective companies, the civilian (nondefense) shipments of the Reynolds Metals Co. for the month of March 1941 (the last month before formal priorities were instituted) were 87 percent of the average monthly civilian shipments of that company for the year 1940.

For the same month (March 1941), the civilian shipments of the Aluminum Co. of America were 74 percent of their average monthly civilian shipments of the year 1940. For this purpose, shipment of ingot has been excluded.

The civilian shipments of the Aluminum Co. of America include many civilian products with which the Reynolds Metals Co. has not been in competition, since

the chief product of the Reynolds Metals Co. has been aluminum foil (as stated in testimony of Mr. R. S. Reynolds, May 14, 1941). Therefore, it seems appropriate to compare the civilian foil shipments of the two companies.

For the month of March 1941 Reynolds Metals Co.'s shipments of aluminum foil for civilian purposes were 81 percent of their 1940 monthly average shipments of aluminum foil for civilian purposes.

The civilian foil shipments of the Aluminum Co. of America for the same month (March 1941) were 56 percent of their 1940 monthly average shipments of aluminum foil for civilian purposes.

The foregoing is submitted as related to Mr. Fulton's question, "And it is your opinion, on studies you have made, that they gave their fabricating competitors more metal proportionate to their needs than the Aluminum Co. reserved for itself?" and my reply, "That is correct as to the companies which I have studied. I have studied their relations with the Reynolds Co. particularly."

#### REPORT TO ALUMINUM AND MAGNESIUM PRIORITY COMMITTEE, FEBRUARY 10, 1941

1. Numerous civilian users of aluminum have been in contact with me during the past week, seeking information on their probable future supplies.

I have generally told them that for the next several months the supply of ingot will not be adequate for all civilian demands. They were urged to consider substitution of other materials, cutting down on poundage of aluminum in any possible way, restricting requests on fabricators to filling in low spots so that they will have a balanced inventory, and so forth. My purpose to treat all companies in a given industry as nearly alike as possible has been expressed, and meets with acceptance from all.

These conversations are producing voluntary reductions in quantities requested, such as J. G. Brill (A. C. F. bus) which cut their order for February from 146,000 pounds to only 63,000 pounds, and returned 19,000 pounds of obsolete stock, thus requiring only 44,000 pounds net, or 30 percent of their expected consumption.

2. The Reynolds Metals Co. were advised by us to inform their customers of a shrinking supply of metal for foil. As a result, Reynolds now states that within 2 weeks the aluminum foil for cigarettes will be replaced by lead, with the consent of their customers. Similar steps are being taken with other users where possible.

3. The Aluminum Co. of America salesman (without any specific request from us, and generally prior to the appointment of this committee) have notified customers that little or no shipments should be expected, for civilian uses, for an indefinite period.

This has produced many inquiries, and submission to us in some cases of evidence of defense uses, even when no direct Government contracts could be cited.

4. Pending the adoption of definite policies by this committee, I have authorized the Aluminum Co. of America and Reynolds to make shipments on orders from certain of their regular civilian customers, for reasons that appeared adequate. In no case is a long-range commitment being made. The situations are generally in one of these classes:

A. Product is ultimately, in large part, for national defense, or facilitates production for defense.

B. Customer has substantial amount of aluminum on hand but needs certain sizes, etc., to fill out his supply and thus to make use of that on hand.

C. A relatively small supply will cover a transitional period while substitute materials are being ordered or processed.

D. A relatively small percentage of aluminum will permit completion of a relatively large volume of produce; i. e., the finished product is made chiefly from other components.

5. Steps have been taken to obtain for defense purposes a stock of 1,000,000 pounds of ingot that has been in storage for more than a year, for possible future civilian use.

6. As a result of action taken on scrap, it was reported on Friday that prices were now being quoted at 17 cents or less. The volume of scrap offered has not yet shown an increase.

7. It is suggested that arsenals and navy yards should promptly return their scrap to the supplier of the fabricated aluminum; e. g., 500,000 pounds of borings are now at Picatinny Arsenal. If the usual past procedure is followed, the high bidder may be a scrap dealer who would probably sell this



for chemical purposes. Bauxite can be used for that purpose and the borings refabricated.

8. Should governmental uses, other than defense, be a factor? e. g., recording discs for the Federal Bureau of Investigation.

FRANK B. CLIFFE.

#### EXHIBIT B—CHRONOLOGICAL REPORT ON ORGANIZATION OF ALUMINUM AND MAGNESIUM PRIORITIES COMMITTEE

Executive Order 8629, dated January 7, 1941, established E. R. Stettinius, Jr. as Director of Priorities.

On or about January 13, 1941, Mr. Carl E. Adams, president of Air Reduction Co., at that time with Office of Production Management, at Mr. Stettinius' request, started the selection of personnel to serve on committees to deal with the priority problems that were expected to arise in connection with various materials needed for the defense program.

Although Mr. Adams and I had several informal discussions of proposed personnel, I do not know of any discussions concerning the personnel of such committees with representatives of the Aluminum Co. of America. At Mr. Adams' request, I discussed with Mr. R. S. Reynolds, president of Reynolds Metals Co., several persons whose names Mr. Adams suggested to me as possible representatives of producers, including Mr. Farrell.

On February 3, 1941, the Aluminum and Magnesium Priority Committee held its first meeting with the following persons present: Dr. Ernest M. Hopkins, chairman; Mr. E. J. Barney, industrial consumers' representative; Col. A. J. Lyon, Army representative; Capt. F. H. Schwable, Navy representative; Mr. Samuel S. Stratton, minerals and metals executive office; Mr. E. C. Laird, secretary, minerals and metals executive office; Mr. Frank B. Cliffe, Production Division consultant; Mr. G. R. Holden, Production Division consultant; Mr. E. M. Martin, labor representative; Lt. Comdr. R. J. Walker, Bureau of Ships.

At the third meeting of the Committee, February 17, 1941, Mr. Ralph G. Farrell appeared for the first time, as producers' representative. This delay in having a producer representative present and serving on the committee reflected difficulty which Mr. Adams experienced in finding an individual who was sufficiently well acquainted with the aluminum-producing industry to render valuable service to the Committee and, at the same time, not with the Aluminum Co. of America.

Subsequent meetings of the Committee have been held at frequent intervals, generally weekly.

#### SOME POSSIBLE BASES FOR ESTABLISHING PRIORITY

##### USES OF ALUMINUM SUPPLY AVAILABLE FOR CIVILIAN PURPOSES

1. Allow shipment, in full, for customers whose orders, in total over a year, are less than ----- pounds each.

(Large number of customers would be satisfied with small aggregate poundage.)

2. Allow shipments at a rate equal to customer's *smallest* monthly average in any calendar quarter of 1940.

(Eliminate or minimize supply to sporadic users, as distinguished from regular users, whose business requires steady flow.)

3. Review large users individually and make cuts wherever justified.

4. Consider ease of substitution and availability of the alternate material.

5. Should a distinction be made between (a) fabricators of standard articles (made in advance of sale, where shortage of the finished article will automatically lessen sales), and (b) production as a result of specific orders (where fabricator may explain shortage and suggest substitution)?

6. Supply aluminum which is a replacement or repair of existing installation where matching of other equipment is important; e. g., additional wire on a transmission line.

7. Furnish aluminum when it is a small part of a major item—when a few ounces of aluminum permit many dollars of finished products; e. g., condenser foil 3 cents, radio set \$50.

8. Recognize that basis of priorities may change with severity of cut needed; i. e., some uses that are O. K. in full if 75 percent of total normal is available, must be restricted if only 50 or 25 percent is available.

9. Should consideration be given to user's investment that would become idle with restriction in supply \* \* \* investment in manufacturing facilities, in research or commercial development, in labor force?

10. Should there be furnished enough aluminum to complete the contracts on the books at, say, January 1, 1941?

11. Should a condition of supply be that the user schedule his requirements, taking aluminum only as actually needed?

12. Should a condition be that all scrap would be returned to the fabrication?

FRANK B. CLIFFE.

EXHIBIT C—EXTRACTS FROM MINUTES OF MEETINGS OF ALUMINUM AND MAGNESIUM PRIORITIES COMMITTEE CONCERNING CIVILIAN PRIORITY CLASSIFICATIONS

The following verbatim quotations from the minutes relate to the reviews and discussions of the proposed classifications of civilian priorities, as recorded in the minutes of the Aluminum and Magnesium Priorities Committee.

*Meeting of February 3, 1941*

"Colonel Lyon felt that perhaps aluminum might be allocated on the basis of the capacity of the user to fabricate or use it and that such allocations should take into account the present stock in the hands of the user. He also felt that the industry should be advised not to contemplate any increase in expansion of facilities or products for purely civilian consumption, and that industry should examine the possibility of using substitute materials and advise the amount and the time required to put such a substitute program into effect on a yearly basis. He also thought that it might be well to determine how much aluminum could be obtained from scrap dealers, and to see if present users of high-grade aluminum alloy might not give consideration to using the lower grades of secondary metal.

"It was brought out in the meeting that the Aluminum Company of America now finds itself in the position of not being able to supply all the customers' requirements for aluminum and does not wish to be placed in the position of determining the validity of one customer's claim vs. another's with respect to its (customer's) importance in the national-defense program.

"In view of this attitude, it was felt that the Committee should recommend to the Director of Priorities that the Priorities Division relieve the Aluminum Company of America of the responsibility of allocating its aluminum output at the earliest possible date. It was the consensus of the committee that with the data in hand at this time, the committee was not in a position to recommend to the Director any specific policy for administering the allocation of aluminum to domestic consumers; however, until such time as sufficient data can be obtained to formulate a definite policy, the committee agreed to make the following tentative recommendations:

"1. Request the aluminum companies to comply with all orders for military purposes on the basis of deliveries scheduled by the Army and Navy Munitions Board.

"2. Request the aluminum companies to fill orders for aluminum to be used in the aircraft being built for the British, along with the program for the Army and Navy under Item 1, above.

"3. Request the aluminum companies to fill orders for aluminum to be used in equipment indirectly a part of the military program, and in this case the Aluminum Company's schedule of orders will be reviewed by the Priorities Division.

"4. Request the aluminum companies to fill all other orders, purely civilian in nature, to the extent of not more than 30 percent of the requirements for the month of February 1941. The base on which the 30 percent shall be applied should be taken as deliveries made to the same consumers during the month of February 1940."

*Meeting of February 10, 1941*

"Mr. Cliffe read a report he had prepared, and a set of twelve questions which he felt, if answered, would form the basis for a policy of allocating aluminum for domestic consumption." (Report and list of questions are attached, marked Exhibits A and B respectively.)

*Meeting of February 17, 1941*

"Mr. Cliffe stated that the Aluminum Company of America notified all of their customers they are not going to get any metal for the month of March that is not for the defense program, and that they also were on notice for February. He further stated that if this continues, you face shut-down of a good many industries.

"It was decided that the chairman would appoint a subcommittee with representatives of the Consumers Division, Labor Division, Production Division, and the Purchase Division to study consumer industries and make recommendations to the Priority Committee for the proper allocation to various industries for civilian purposes."

*Meeting of March 3, 1941*

"Mr. Cliffe again brought before the Committee the question of how the available aluminum is going to be allotted for civilian consumption during the month of March 1941. The Chairman informed this Committee that because of the numerous meetings held last week, he was unable to appoint a subcommittee to consult with representatives of the Aluminum Company of America on this problem. A general discussion followed, and a suggestion was made by Commander Logan to allot the aluminum for civilian use for the month of March 1941 on a "percentage basis," but that in the meantime a thorough study be made for the allotment in April 1941, May 1941, and so on. It was pointed out that where secondary metal can be used in the defense program in place of virgin aluminum, such substitute would release that amount of virgin metal. Mr. Barney suggested that we allot so much virgin metal if the companies will take so much secondary metal. Dr. Kiessling stressed the importance of the control of secondary metal, stating that the percentage method, outlined by Commander Logan, would be a short cut, but that it would be a complete failure unless the secondary smelters were controlled.

"At this point Mr. Cliffe offered another alternative based on the quantity required viz., that any used be allotted up to a certain amount, and if he wants more than that, he has to furnish information as to inventory, needs, etc., and explained that such a method would make it possible to take care of a large number of requests for aluminum, and perhaps might be better than a flat percentage basis.

"Mr. Wallace suggested that (1) we set the maximum amount they can get and ask the smelters that they do not give more than that, and (2) we cut everybody except a few cases which we know would result in tremendous amount of unemployment. He further stated that a quick check should be made to ascertain to what extent the automobile companies and piston companies have adequate stocks.

"It was the feeling of this committee that some quick method of allotment should be worked out for March 1941, and that, in the meantime a thorough study be made for future allotments. In this connection, Mr. McCormick suggested that a subcommittee immediately be appointed to work on a plan or questionnaire, that should be sent out, with the request that it be returned by March 15, 1941, requesting information on employment, value of product, description of product, what substitutes have been made, reasons for use of particular material, stocks, and so on, and then future allotments will be made on the basis of the information revealed by that questionnaire, and study thereof.

"Referring again to the 'percentage basis,' Mr. Barney felt it would be an unjust basis, and suggested that we go to the aluminum companies, explain to them what we are trying to do, and ask them for suggestions, and emphasized that 'portioning' should be left to the companies until we have had an opportunity to study the problem. Mr. Cliffe pointed out that the percentage arrived at would be a yardstick method based on the actual shipments of the aluminum companies during the year 1940."

*Meeting of March 10, 1941*

"Mr. Cliffe informed this Committee that the manufacturers are explaining why they need aluminum and why it is essential to domestic economy; that the over-all picture is that civilians cannot have more than 20% to 25%



of the aluminum they normally use; that we are reaching the point where the civilian users of aluminum just do not have any inventories left, and we must institute some formal program for determining who will get the amount of aluminum that is available, or abandon any thought of priority and let it be merely a scramble, with our instructions limited to companies fabricating aluminum, who must take care of defense demands; further, that he has discussed with many people the possible means of restricting or controlling production; that no one has a solution satisfactory to him, and, therefore, he drafted a plan, which he read to this Committee for its recommendation and changes.

"A general discussion of the above-mentioned plan followed. Colonel Lyon stated that as it appears to him the problem is that (1) we must have some administration and that means we will have to set up something of the nature of the scheduling unit that we have at Wright Field for the aircraft industry, and (2) we must issue a statement to the civilian users for the purpose of governing the allocation. With respect to the statement, Colonel Lyon felt that we would be making a mistake now, or at any time, to state a definite amount, because we do not know enough about the situation at this time, and later if it develops that we should change the percentage, it would be difficult to do, once a definite amount had been stated. In addition, Colonel Lyon felt the statement should be issued as a confidential one. Minor changes and suggestions were recommended and made in the plan submitted by Mr. Cliffe, and it was moved and seconded that the plan be adopted and prepared. (When this plan reaches final form, copy will be made an exhibit to the minutes of some future meeting.)" (This involved into Supplementary Order M-1-a, previously filed with the Committee in connection with Mr. M. L. Batt's testimony.)

*Meeting of March 17, 1941*

"Mr. McCormick felt that it is not proper for this Committee to permit the producers to make the classification. In this connection, Mr. Wallace pointed out that the seller of aluminum has no power to require from his customer the actual statement of his stock position, and felt that the responsibility for allocating aluminum for civilian use is really the responsibility of the government and should not be delegated to the producer; that for the first month or so it might be necessary to start that way, but if we ask them to take the responsibility, the effectiveness of the whole matter will depend on how seriously they take it and how well they cooperate, and further, that there would be a general advantage in asking producers to meet with the representatives of the Office of Production Management to discuss this mandatory order before it is issued."

*Meeting of March 24, 1941*

"Mr. Cliffe distributed copies of Office of Production Management Press Release, PM 182, dated March 22, 1941, to the members of this Committee, and summarized the General Preference Order described in the press release. He stated that all deliveries of primary and secondary aluminum are to be made in accordance with preference ratings, either those given by the Army and Navy Munitions Board on defense material, including the British, or as given by the Office of Production Management, in accordance with the schedule.

"With respect to the Supplementary Order attached to the press release, Mr. Cliffe stated the producer is required to review the uses to which the material is to be put by his customer and on the basis of that review, he assigns a preference rating in accordance with the schedule. The Office of Production Management reviews the action of the producer, as a means of checking up the way in which the producer carried out the instructions. Prior to making any shipments, the producer must have a statement from the customer that he has submitted his inventory position to the Office of Production Management.

"Provision is made in this order for any person who dissents from the preference rating that is assigned, to appeal to the Priorities Division, by addressing a letter to Dr. Ernest M. Hopkins, Priorities Division, Office of Production Management, explaining why he does not agree to the rating assigned."

In addition to discussions at these hearings, there were detailed reviews made by a subcommittee consisting of Dr. Wallace (representing Dr. Lubin and Mr. Leon Henderson) and Mr. McCormick (representing Miss Elliott, consumer representative on the Advisory Commission of National Defense), and individual reviews by representatives of various producing companies.

(The following document is included at this point in connection with testimony of Mr. Frank B. Cliffe, *supra*, p. 777.)

LIST OF PERSONS, INCLUDING \$1-PER-YEAR MEN, HOLDING RESPONSIBLE POSITIONS IN THE OFFICE OF PRODUCTION MANAGEMENT

PRODUCTION DIVISION

	Office of Production Management position and status	Employment in private industry
<b>OFFICE OF DIRECTOR</b>		
John D. Biggers.....	Director—\$1 per annum.....	President, Libbey, Owens, Ford Glass Co.
Wm. L. Batt, Sr.....	Deputy Director—\$1 per annum....	President and chairman of the board, S. K. F. Industries.
H. G. Wilde.....	Special assistant—\$5,000.....	None. Formerly owner and manager, High Lawn Farm.
<b>MATERIALS BRANCH</b>		
S. R. Fuller, Jr.....	Chief—\$1 per annum.....	President, American Bemberg Corporation.
A. I. Henderson.....	Deputy Chief—\$8,000.....	None. Formerly partner in Cravath, de Gersdorff, Swaine & Wood.
G. T. Elliman.....	Executive assistant to Chief—\$4,600.	None. Formerly with Bureau of Foreign and Domestic Commerce.
D. V. Brown.....	Chief, Review Section—\$7,000.....	None. Formerly with Massachusetts Institute of Technology, associate professor of economics.
M. G. deChazeau.....	Consultant, Review Section—\$6,500.	Associate professor, University of Virginia.
M. Lowell McElroy.....	Consultant, Review Section—\$4,600.	None. Formerly with Bureau of Foreign and Domestic Commerce.
Wm. Y. Elliott.....	Consultant, Review Section—\$5,600 (per diem).	Professor, Harvard University.
E. S. Mason.....	Consultant, Review Section—\$9,000 (per diem).	Do.
Gano Dunn.....	Special consultant—President's Steel Survey—\$1 per annum.	President, J. G. White Engineering Corporation and other connections.
J. D. East.....	Special consultant—President's Steel Survey—\$8,000.	None. Formerly with United States Steel Corporation.
Capt. A. D. Reed.....	Liaison officer—Navy Department.	
Maj. G. K. Heiss.....	Liaison officer—War Department.	
George M. Moffett.....	Chief, Minerals and Metals Section—\$1 per annum.	President, Corn Products Refining Co.
F. H. Cabot.....	Assistant to Chief, Minerals and Metals Section—\$1 per annum.	Chairman, General Public Service Corporation.
Charles K. Leith.....	Consultant, Minerals and Metals Section—\$9,000.	None. Formerly chairman, geology department, University of Wisconsin.
S. E. Hackett.....	Consultant on iron, steel, and ferrous alloys—\$8,000.	None. Formerly Jones, Laughlin Steel Corporation, vice president.
W. A. Hauck.....	Consultant, iron and steel—\$6,500.	Consulting steel business.
A. A. Wagner.....	Specialist in structural shapes \$1 per annum.	Jones & Laughlin Steel Corporation, manager of sales, hot rolled products.
G. F. Hoeker.....	Specialist in heavy forgings—\$1 per annum.	Bethlehem Steel Co., manager of sales, castings, forgings, etc.
J. E. West.....	Expert on blast furnaces—\$5,600.....	None. Formerly Youngstown Sheet & Tube Co., superintendent of blast furnaces.
R. C. Allen.....	Consultant on ferrous materials—\$4,800.	Vice president, Ogelbay-Norton Co.
H. K. Masters.....	Consultant on ferrous materials—\$7,000.	On leave. Vice president, Chas. Hardy, Inc.
Andrew Leith.....	Assistant to consultant, ferrous materials—\$5,600.	None. Formerly Reconstruction Finance Corporation.
R. H. Ridgway.....	Consultant on ferrous materials—loan.	Bureau of Mines.
G. R. Holden.....	Consultant on aluminum and magnesium—\$8,500.	None. Formerly with Eastman Kodak Co. (economic counsel).
F. B. Cliffe.....	Consultant on aluminum and magnesium—\$1 per annum.	Comptroller, General Electric Co.
C. W. Kellogg.....	Consultant on heat, light, and power—\$1 per annum.	President, Edison Electric Institute.

## PRODUCTION DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>MATERIALS BRANCH— Continued</b>		
John A. Church.....	Consultant on copper, zinc, and brass—\$6,500.	None. Formerly consulting engineer.
Erwin Vogelsang.....	Consultant on tin and lead—\$6,000.	None. Formerly Orris Bros. & Co.
H. G. Sykes.....	Consultant on mica—\$1 per annum.	Chairman of the board, Eugene Munsell Co.
R. J. Lund.....	Consultant on miscellaneous minerals—\$6,500.	None. Formerly editor of Journal, American Mining Congress.
Frederick B. Adams, Jr.....	Consultant on materials—\$6,000.	Aerodds Corporation (Sparrows Point, Md.).
R. E. McConnell.....	Chief, Conservation and Substitution Section—\$1 per annum.	None. Formerly president, Mayflower Associates.
W. L. Finger.....	Assistant to Chief, Agricultural and Forest Products Section—\$1 per annum.	Rubber Manufacturer's Association.
F. L. Walton.....	Consultant—Textile Unit—\$1 per annum.	Vice president, Catlin Farish Co.
E. M. McGowin.....	Consultant—lumber and timber products—\$1 per annum.	Vice president, W. T. Smith Lumber Co.
L. W. Smith.....	Consultant on lumber and timber products—\$5,000.	None. Formerly chief engineer, National Lumber Manufacturers Association.
D. C. Everest.....	Consultant on pulp and paper—\$1 per annum.	President, Ontanagon Fibre Corporation and Marathon Paper Mills.
Edward K. Bauer.....	Consultant, Iron, Steel, and Ferrous Unit—\$1 per annum.	Member of sales, Carnegie-Illinois Steel Corporation.
W. Ray Bell.....	Consultant—Agriculture and Forest Products Section—\$1 per annum.	President, Association of Cotton Textile Merchants.
E. A. Brand.....	Assistant to consultant—Leather Unit—\$1 per annum.	Tanners' Council of America.
H. W. Bryant.....	Expediter, Iron and Steel Unit—\$1 per annum.	Youngstown Sheet & Tube Co.
Major J. W. Byron.....	Consultant—Leather Unit—\$1 per annum.	President, W. D. Byron & Sons.
A. J. O'Leary.....	Order expediter—iron and steel—\$1 per annum.	Lukens Steel Co.
Frank E. Spencer.....	Specialist on electric furnace and alloy steels—\$1 per annum.	Vice president, Crucible Steel Co.
James S. Adams.....	Chief, Agriculture and Forest Products Section—\$1 per annum.	Vice president, Colgate-Palmolive Peet Co.
P. M. Reinartz.....	Special adviser on steel, minerals and Metals Section—\$1 per annum.	Metallurgical consultant, Armco International Corporation.
John C. Parker.....	Consultant, heat, light, and power, Minerals and Metals Section—\$1 per annum.	Vice president, Consolidated Edison Co.
H. M. McAdoo.....	Consultant on leather, Agriculture and Forest Products Section—\$1 per annum.	United States Leather Co.
C. W. Boyce.....	Assistant consultant on pulp and paper—\$1 per annum.	Secretary, Kraft Paper Association.
E. R. Weidlein.....	Chief, Chemical Section—\$1 per annum.	Director of Mellon Institute.
E. W. Reid.....	Assistant Chief, Chemical Section—\$9,000.	On leave. Carbide & Carbon Corporation, Director of sales development.
R. E. Wilson.....	Chief, Petroleum and Natural Gas Unit—\$1 per annum.	President of Pan American Petroleum Co. and American Oil Co. and subsidiaries.
C. C. Monrad.....	Technical assistant, petroleum and natural gas—\$1 per annum.	Carnegie Institute of Technology and consultant with Universal Oil Products Co.
P. M. Robinson.....	Assistant to Chief, Petroleum and Natural Gas Unit—\$8,000.	None. Formerly with Pennzoil Co.
D. P. Morgan.....	Consultant on chemical and allied products—\$9,000.	On leave from Scudder, Stevens & Clark.
C. E. Osborn.....	Economic analyst—\$4,600.	None. Formerly assistant to president, Continental Oil Co.
<b>AIRCRAFT, ORDNANCE AND TOOLS BRANCH</b>		
E. F. Johnson.....	Chief—\$1 per annum.	None. Formerly with General Motors (retired, January 1930).
H. T. Bodman.....	Assistant to Chief—\$5,600.	None. Formerly assistant vice president, National Bank of Detroit.
M. C. Meigs.....	Chief, Aircraft Section—\$1 per annum.	None. Formerly vice president, Chicago Herald-American.
T. P. Wright.....	Assistant Chief, Aircraft Section and Chairman, Standardization Subcommittee—\$9,000.	None. Formerly with Curtis-Wright Corporation.
Lt. Col. E. M. Powers.....	Chief, Engineering Unit—loan.	War Department.



## PRODUCTION DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>AIRCRAFT ORDNANCE AND TOOLS BRANCH— Continued</b>		
A. E. Lombard, Jr. ....	Chief, Production Planning Unit and Chairman, Allocation Sub- committee—\$8,000.	None. Formerly with California In- stitute of Technology.
Harold R. Boyer .....	Chief, Manufacturing Unit—\$6,500.	President, the Allen Corporation.
A. R. Glancy .....	Chief, Ordnance Section—\$1 per annum.	President, A. R. Glancy, Inc.
R. A. Saltzstein .....	Assistant to Chief, Ordnance Sec- tion—without compensation.	Self.
E. S. Chapman .....	Chief, Small Arms and Small Arms Ammunition Unit—\$1 per annum.	Chrysler Corporation.
L. E. Osborne .....	Chief, Heavy Ordnance, Optical Goods, and Fire Control Unit— \$1 per annum.	Westinghouse Electric & Manufacturing Co.
L. deB. McCrady .....	Chief, Explosives Unit—\$5,600.	None. Formerly Canadian Industries, Ltd. (retired).
W. W. Knight, Jr. ....	Chief, Tanks and Combat Vehicles Unit—\$5,600.	Director, Michigan Alkali Co.
C. G. Williamson .....	Chief, Production Scheduling Unit— \$5,600.	Leave of absence, Michigan Alkali Co.
Mason Britton .....	Chief, Tools Section—\$1 per annum.	Vice president, McGraw-Hill Publish- ing Co., Inc.
H. W. Dunbar .....	Technical Chief, Tools Section—\$1 per annum.	Vice president, Norton Co.
A. B. Einig .....	Administrative Chief, Tools Sec- tion—\$1 per annum.	General manager, Motch & Merry- weather Machinery Co.
C. A. Simmons .....	Chief, Used Machine Tools Unit— \$1 per annum.	President, Simmons Machine Tool Cor- poration.
H. H. Kuhn .....	Chief, Mill Supplies Unit—\$1 per annum.	President, the Hardware & Supply Co.
R. S. Brainerd .....	Chief, Gauge Unit—\$1 per annum.	Niles-Bement-Pond Co.
F. G. Steinebach .....	Chief, Foundry Equipment Unit— \$1 per annum.	Secretary, Penton Publishing Co.
Sydney Buckley .....	Chief, Crane Unit—\$1 per annum.	President, Shepard, Niles Crane & Hoist Co.
D. B. Stoughton .....	Chief, Heat Treating Equipment Unit—\$1 per annum.	Professor of metallurgy, Lehigh Uni- versity.
B. A. Waderlow .....	Chief, Forging Equipment and Presses Unit—\$1 per annum.	Executive, Chevrolet central office.
A. M. Stedfast .....	Chief, Machine Tools Unit—\$1 per annum.	Vice president, Stedfast & Roulston, Inc.
Murray Bohlman .....	Consultant—Tools Section—with- out compensation.	Production contract method engineer, Kearney & Trecker Corporation.
B. N. Brockman .....	do	District manager, R. K. LeBlond Ma- chine Tools.
Wayne H. Folger, Jr. ....	do	Machine demonstrating and engineering, Heald Machine Co.
Frank U. Hayes .....	do	The Bullard Co.
Henry C. Hook .....	do	Personnel development, Bridgeport Leather, Inc.
John Jeppson .....	do	Production training, Norton Co.
W. Grove Kuhn .....	do	Assistant purchasing agent, Landis Tool Co.
W. W. Meade .....	do	Sales engineering, Gisholt Machine Co.
Charles Peix .....	do	Industrial engineer, Norton Co.
T. H. Price .....	Consultant—Tools Section—\$1 per annum.	Secretary, Hill-Clarke Machine Co.
Donald Ringie .....	Consultant—Tools Section—with- out compensation.	Drafting—Jones-Lamson Co.
Victor E. Rosenlund .....	do	Tool designer—Reed-Prentice Corpora- tion.
M. L. Fawcett .....	Assistant Director, Ordnance Sec- tion—\$1 per annum.	Westinghouse Electric & Manufacturing Co.
E. C. Brandt .....	Consultant—Tools Section—\$1 per annum.	Do.
Knud Engelsted .....	Executive adviser, Machine Tools Unit—\$1 per annum.	Vice president, Nova Tool Co.
Donald L. Laffin .....	Technical adviser, Machine Tools Unit—\$1 per annum.	Giddings & Lewis Machine Tool Co.
Norris M. Perris .....	Consultant—\$1 per annum.	Vice president, Stevenson, Jordan & Harrison.
J. Roy Porter .....	Technical expert, Machine Tool Unit—\$1 per annum.	Chairman, Marshall & Husehart Ma- chine Co.
Millard Romaine .....	Consultant, Machine Tools Unit— \$1 per annum.	Sales manager, Cincinnati Milling Ma- chine Co.
H. F. Seymour .....	Assistant chief, Mill Supplies Unit—\$1 per annum.	Vice president, the Columbian Vise & Manufacturing Co.
A. C. Danekind .....	Consultant—pressings and forg- ings—\$1 per annum.	Executive mechanical engineer, General Electric Co.

## PRODUCTION DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>AIRCRAFT, ORDNANCE AND TOOLS BRANCH— Continued</b>		
Charles E. Curtis.....	Chief, Mill Supplies Unit—\$1 per annum.	President, Western Iron Stores Co.
George J. Mead.....	Consultant, Aircraft Section—\$1 per annum.	Director, United Aircraft & Transport Corporation.
<b>SHIPBUILDING, CON- STRUCTION AND SUP- PLIES BRANCH</b>		
W. H. Harrison.....	Chief of Branch and Construction Section—\$1 per annum	Vice president and chief engineer of the American Telephone & Telegraph Co.
Admiral E. S. Land.....	Chief, Shipbuilding Section—loan	Maritime Commission.
Capt. J. O. Gawne.....	Assistant, Shipbuilding Section—loan.	Do.
H. W. Hitchcock.....	Technical assistant, Shipbuilding Section—\$1 per annum.	Chief engineer, Southern California Telephone Co.
Carl M. Lyngne.....	do.	Assistant manager, General Electric Co.
B. D. Hull.....	Special adviser, Construction Section—\$1 per annum.	Chief engineer, Southwestern Bell Telephone Co.
Mark Eldridge.....	Chief business specialist—\$7,500.	None. Formerly with Memphis Gas Light & Water Division.
A. C. Johnson.....	Assistant architectural engineer—\$3,200.	None. Formerly with Chesapeake & Potomac Telephone Co.
W. F. Carey.....	Consultant—\$1 per annum	Partner, Carey, Baxter & Kennedy.
J. C. Nichols.....	Chief, Supplies Section—\$1 per annum.	President and chairman, Nichols Co.
M. J. Luce.....	Head business specialist—\$8,000.	President, Egg White Products Co.
Fred Jones.....	Consultant—Supplies Section—\$1 per annum.	Owner, Fred Jones Automobile Distributor.
W. V. Kahler.....	Special adviser, Construction Section—\$1 per annum.	Chief engineer, Illinois Bell Telephone Co.
Clyde Davis.....	Assistant in Supplies Section—\$5,000.	None. Formerly with Percy A. Brown & Co.
Mary I. Barber.....	Dietitian—\$1 per annum	Director of home economics, Kellogg Co.
John F. McKernan.....	Chief, Equipment Section—\$1 per annum.	Western Electric Co.
A. R. Metcalfe.....	Assistant, Equipment Section—\$5,600.	None. Formerly for self.
Robert Holland.....	Commercial specialist, Equipment Section—\$3,800.	None. Formerly with Home Owners' Loan Corporation.
E. N. White.....	Chief, Staff Section—\$1 per annum	Assistant manager, New England Telephone & Telegraph Co.
J. V. Dunn.....	Special adviser, Staff Section—\$1 per annum.	Engineer, American Telephone & Telegraph Co.
W. W. Snyder.....	Assistant, Staff Section—\$4,000	None. Formerly with Public Works Administration.
<b>DEFENSE CONTRACT SERVICE</b>		
R. L. Mehornay.....	Chief—\$1 per annum	President, North Mehornay Furniture Co.
Gov. E. G. Draper.....	Chief, Federal Reserve Unit—loan	Federal Reserve System.
C. J. Myers.....	Chief, Procurement Procedure—\$6,500.	None. Formerly president, Myers Motor Co.
J. L. Trecker.....	Consultant, subcontracting procedure (on loan from War Department).	
F. J. Trecker.....	do.	
Earl E. T. Smith.....	District office operations consultant, Defense Contract Service—\$1 per annum.	Broker and member of New York Stock Exchange.
August Wilks.....	Subcontracting consultant—\$6,500.	None. Formerly staff engineer, Stevenson, Jordan & Harrison.
Clarence W. Avery.....	District coordinator—\$1 per annum	Murray Corporation of America.
George C. Brainard.....	do.	General Fireproofing Co.
Albert M. Creighton.....	do.	None. Formerly shoe manufacturer (retired).
R. C. Force.....	do.	Chairman, Federal Reserve Bank, San Francisco.
Thomas S. Gates.....	do.	President, University of Pennsylvania.
W. H. Hartz.....	do.	President, Morgan Frog & Crossing Works.
J. G. Holtzclaw.....	do.	President, Virginia Electric & Power Co.
Charles R. Moore.....	do.	President, Austin Bridge Co.
Frank H. Neely.....	do.	Executive vice president, Rich's, Inc.
Roger B. Shepard.....	do.	President, Finch, Van Slyck & McConville.
Kenneth A. Spencer.....	do.	Vice president, Midwest-Radiant Corporation.
Harry B. Wallace.....	do.	President, Cupples Manufacturing Co.

## PRODUCTION DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>DEFENCE CONTRACT SERVICE—continued</b>		
F. B. Byerly.....	Consultant on accounting—Production Division—\$1 per annum.	Price, Waterhouse & Co.
A. I. Henderson.....	Liaison—Export control (formerly given).	
Edward Browning, Jr....	Assistant liaison—Export control—\$1 per annum.	Partner, Geo. H. McFadden & Bro.
<b>PRODUCTION PLANNING BOARD</b>		
R. E. Doherty.....	Chairman—\$1 per annum.....	President, Carnegie Institute of Technology.
Brig. Gen. H. K. Ruth- erford.....	Member (loan from Navy Department).	
J. B. Carey.....	Member—\$1 per annum.....	Secretary of the Congress of Industrial Organizations and other connections.
H. L. Hopkins.....	Member (Lend-Lease Administrator).	
W. E. Levis.....	Member—\$1 per annum.....	Chairman of the board, Owens-Illinois Glass Co.
George Meany.....	do.....	Secretary-treasurer, American Federation of Labor.
J. L. Pratt.....	do.....	Executive vice president, General Motors (retired).
Admiral W. H. Stanley..	Member (loan from Navy).....	

## PRIORITIES DIVISION

<b>OFFICE OF DIRECTOR</b>		
E. R. Stettinius, Jr.....	Director—without compensation.....	None. Formerly United States Steel Corporation.
R. J. Lynch.....	Executive assistant—\$9,000.....	Leave without pay from United States Steel Corporation.
Hayden Raynor.....	Assistant to Director—\$6,000.....	Do.
J. P. Gregg.....	Deputy Assistant Director—\$8,000 (operations).	None. Formerly State Department, reciprocity information.
Blackwell Smith.....	Assistant Director—\$8,000 (policy).....	None. Formerly partner in law firm of Wright, Gordon, Zachry & Parlin.
Philip D. Reed.....	Senior consultant—\$1 per annum.....	General Electric Co., chairman of board.
L. K. Straus.....	Secretary—\$1 per annum.....	Sales manager, Shaw Walker Co.
E. V. Russ.....	Assistant secretary—\$6,000.....	Leave of absence from United States Steel Corporation.
L. E. Scriven.....	Assistant Deputy Director—\$8,000 (field offices).	None. Formerly with A. C. Neilson Co., president.
E. C. Laird, Jr.....	Assistant to Assistant Deputy Director (field offices)—\$1 per annum.	American Telephone & Telegraph Co.
C. H. Matthiessen.....	Assistant Deputy Director (operations)—\$1 per annum.	None. Formerly assistant to president of Hawaiian Pineapple Co.
J. L. Overlock.....	Assistant Deputy Director (project and blanket priorities)—\$1 per annum.	Vice president of Continental Illinois Bank & Trust Co.
A. L. Williams.....	Assistant to Assistant Deputy Director—(Project and Blanket Priorities)—\$1 per annum.	International Business Machine Corporation.
E. A. Locke, Jr.....	Assistant Deputy Director (liaison, United States and foreign) \$5,600.	None. Formerly Chase National Bank.
G. G. Dominick.....	Liaison officer, Maritime Shipbuilding.	
<b>MINERALS AND METALS GROUP</b>		
E. M. Hopkins.....	Chairman—\$1 per annum.....	President, Dartmouth College.
S. S. Stratton.....	Group executive—\$8,000.....	Leave of absence from Harvard Business School.
A. D. Whiteside.....	Senior consultant—\$1 per annum.....	President, Dun & Bradstreet.
L. J. Martin.....	Inventory Control Chief—\$1 per annum.	Assistant to president, Thomas A. Edison, Inc.
<b>IRON AND STEEL BRANCH</b>		
H. L. Whitney.....	Staff expert—\$1 per annum.....	None. Chief engineer (Fabricated Production Division).
<b>PRIORITY COMMITTEE</b>		
A. D. Whiteside.....	Chairman.....	Formerly given.
Lt. Col. H. C. Minton.....	Liaison—War Department.....	
Capt. Paul Hendren.....	Liaison—Navy Department.....	



## PRIORITIES DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
PRIORITY COMMITTEE— continued		
W. S. Tower.....	Producers' representative—\$1 per annum.	President, American Iron and Steel Institute.
C. C. Conway.....	Industrial Users' Representative—without compensation.	Chairman of board, Continental Can Co.
J. C. Lewis.....	Labor representative—associated with Labor Division.	United Mine Workers of America.
E. T. McCormick.....	Consumers' representative—associated with Office for Emergency Management.	
ALUMINUM AND MAG- NESIUM BRANCH		
F. B. Cliffe.....	Staff expert—\$1 per annum.....	Assistant comptroller, General Electric Co.
PRIORITY COMMITTEE		
E. M. Hopkins.....	Chairman.....	Formerly given.
Col. A. J. Lyon.....	Liaison—War Department.....	
Lt. Comdr. D. M. Logan.....	Liaison—Navy Department.....	
R. G. Farrell.....	Producers' representative—without compensation.	Chairman, Fairmont Aluminum Co.
E. J. Barney.....	Industrial Users' Representative—\$1 per annum.	Purchasing agent, General Motors Corporation.
J. C. Lewis.....	Labor representative—associated with Labor Division.	Formerly given.
E. T. McCormick.....	Consumers' representative—associated with Office for Emergency Management.	Do.
FERROUS ALLOYS AND MINERALS BRANCH		
D. A. Uebelacker.....	Staff expert—\$1 per annum.....	Ford, Bacon & Davis, staff member.
PRIORITY COMMITTEE		
A. D. Whiteside.....	Chairman.....	Formerly given.
Col. A. J. Lyon.....	Liaison—War Department.....	
Comdr. R. J. Walker.....	Liaison—Navy Department.....	
R. L. Suhl.....	Producers' representative—without compensation.	Manager, sales department, International Nickel Co.
H. J. Batcheller.....	Industrial users' representative—compensation.	President, Allegheny Ludlum Steel Corporation.
J. C. Lewis.....	Labor representative—associated with Labor Division.	Formerly given.
E. T. McCormick.....	Consumers' representative—associated with Office for Emergency Management.	Do.
NONFERROUS METALS AND MINERALS BRANCH		
W. A. Janssen.....	Staff expert—loan.....	Chief, Minerals and Metals Section, Bureau of Foreign and Domestic Commerce, Department of Commerce.
PRIORITY COMMITTEE		
E. M. Hopkins.....	Chairman.....	Formerly given.
Col. W. R. Slaughter.....	Liaison—War Department.....	
Commander R. J. Walker.....	Liaison—Navy Department.....	
I. H. Cornell.....	Producers' representative—without compensation.	Vice president, St. Joseph Lead Co.
H. L. Erlicher.....	Industrial users' representative—without compensation.	Vice president, General Electric Co.
J. C. Lewis.....	Labor representative—associated with Labor Division.	Formerly given.
E. T. McCormick.....	Consumers' representative—associated with Office for Emergency Management.	Do.
CHEMICALS GROUP		
H. E. Howe.....	Chairman—\$1 per annum.....	Editor, Industrial and Engineering Chemistry.
D. P. Morgan.....	Group executive—\$9,000 per annum.....	None. Formerly with Seudder, Stevens & Clark, chemical consultant.
J. W. Wizeman.....	Staff expert—part-time loan.....	Chemical Section, Bureau of Foreign and Domestic Commerce, Department of Commerce.
F. W. Whitmore.....	Special technical consultant—without compensation.	Dean of chemistry, Pennsylvania State College.

## PRIORITIES DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>PRIORITY COMMITTEE</b>		
H. E. Howe.....	Chairman.....	Formerly given.
Major C. V. Morgan.....	Liaison—War Department.....	
Lt. N. S. Prime.....	Liaison—Navy Department.....	
Warren Watson.....	Producers' representative—without compensation.	Ex-secretary, Manufacturing Chemists Association.
E. T. Trigg.....	Industrial users' representative— without compensation.	National Paint, Varnish and Lacquer Association.
R. S. Holmes.....	Consumers' representative—associ- ated with Office for Emergency Management.	
P. H. Groggins.....	Agriculture representative—associ- ated with Office for Emergency Management.	
<b>COMMERCIAL AIRCRAFT GROUP</b>		
A. D. Whiteside.....	Chairman.....	Formerly given.
Charles Halcomb.....	Group executive—\$5,600.....	None. Proctor & Gamble Distributing Co.
<b>PRIORITY COMMITTEE</b>		
A. D. Whiteside.....	Chairman.....	Formerly given.
Major M. E. Gross.....	Liaison—War Department.....	
Capt. D. C. Ramsey.....	Liaison—Navy Department.....	
Col. J. H. Jouett.....	Producers' representative—without Compensation.	President, Aeronautical Chamber of Commerce.
C. R. Smith.....	Industrial users' representative—\$1 per annum—associated with Transportation Division, Office for Emergency Management.	President, American Airlines, Inc.
R. S. Holmes.....	Consumers' representative—associ- ated with Office for Emergency Management.	
<b>TOOLS AND EQUIPMENT GROUP</b>		
D. S. Kimball.....	Chairman—\$1 per annum.....	Vice president, Ithaca Savings Bank; dean emeritus, Cornell College of Engi- neering.
<b>MACHINE TOOLS BRANCH</b>		
L. R. Hawkins.....	Staff expert—\$1 per annum.....	District manager, Warner & Swasey.
E. D. Gangwere.....	do.....	Director of equipment, Westinghouse Electric & Manufacturing Co.
L. K. Vry.....	do.....	Tools superintendent, Caterpillar Trac- tor Co.
<b>PRIORITY COMMITTEE</b>		
D. S. Kimball.....	Chairman.....	Formerly given.
Col. T. J. Hayes.....	Liaison—War Department.....	
Capt. E. C. Almy.....	Liaison—Navy Department.....	
F. V. Geier.....	Producers' representative—without compensation.	President, Cincinnati Milling & Ma- chine Co.
E. D. Gangwere.....	Industrial users' representative.....	Formerly given.
M. J. Burns.....	Labor representative.....	
W. H. Wynne.....	Consumers' representative—associ- ated with Office for Emergency Management.	
<b>GENERAL EQUIPMENT PRIORITY COMMITTEE</b>		
D. S. Kimball.....	Chairman.....	Formerly given.
Maj. H. S. Lord.....	Liaison—War Department.....	
Lt. Comdr. O. L. Carl- son.....	Liaison—Navy Department.....	
F. A. Schaff.....	Producers' representative—without compensation.	President, Superheater Co.
J. C. Parker.....	Industrial users' representative— without compensation.	Vice president, Consolidated Edison Co.
M. J. Burns.....	Labor representative.....	Formerly given.
W. H. Wynne.....	Consumers' representative.....	Do.
<b>GENERAL PRODUCTS GROUP</b>		
H. S. Rogers.....	Chairman—\$1 per annum.....	President, Brooklyn Polytechnic Insti- tute.
C. H. Matthiessen, Jr.....	Group executive—\$1 per annum.....	Formerly assistant to president, Hawai- ian Pineapple Co.

## PRIORITIES DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>RUBBER BRANCH</b>		
F. H. Carman.....	Staff expert—\$1 per annum.....	Chief rubber chemist, Armstrong Cork Co.
<b>PRIORITY COMMITTEE</b>		
H. S. Rogers.....	Chairman.....	Formerly given.
Maj. G. K. Heiss.....	Liaison—War Department.....	
Ens. W. H. Wendel.....	Liaison—Navy Department.....	
A. L. Viles.....	Producers' representative—\$1 per annum.....	President, Rubber Manufacturing Association.
A. Reeves.....	Industrial users' representatives—without compensation.....	Advisory vice president, Auto Manufacturing Association.
J. C. Lewis.....	Labor representative—associated with Labor Division.....	Formerly given.
J. P. Cavin.....	Consumers' representative—Associated with Office for Emergency Management.....	
<b>HIDES SKINS AND LEATHER PRIORITY COMMITTEE</b>		
H. S. Rogers.....	Chairman.....	Do.
Lt. Col. R. McG. Littlejohn.....	Liaison—War Department.....	
Comdr. F. P. Delahanty.....	Liaison—Navy Department.....	
W. B. Eisendrath.....	Producers' representative—without compensation.....	President, Monarch Leather Co.
B. A. Gray.....	Industrial users' representative—without compensation.....	President, International Shoe Co.
J. P. Cavin.....	Consumers' representative.....	Formerly given.
<b>TEXTILE PRIORITY COMMITTEE</b>		
H. S. Rogers.....	Chairman.....	Do.
Lt. Col. Carl Hardigg.....	Liaison—War Department.....	
Comdr. F. P. Delahanty.....	Liaison—Navy Department.....	
H. L. Bailey.....	Producers' representative.....	
E. P. Cave.....	Industrial users' representative—without compensation.....	President, Ely & Walker Dry Goods Co
R. F. Bryan.....	Consumers' representative—associated with Office for Emergency Management.....	

## LABOR DIVISION

<b>OFFICE OF THE DIRECTOR</b>		
Sidney Hillman.....	Director—without compensation.....	Amalgamated Clothing Workers of America.
Isador Lubin.....	Deputy Director—loan.....	Labor Department.
Maxwell Brandwen.....	Executive assistant—\$9,000.....	Self. Now none.
Eric A. Nicol.....	Executive assistant—\$8,000.....	None. Formerly with Bureau of the Budget.
W. W. Alexander.....	Special adviser—Minority groups—without compensation.....	Rosenwald Foundation.
Morris L. Cooke.....	Special adviser—shipbuilding stabilizations—\$8,000.....	None. Formerly Administrator, Rural Electrification Administration.
Herbert Harris.....	Special adviser—information—\$9,000 (per diem).....	None.
Isador Lubin.....	Special adviser—economics.....	Formerly given.
Eli L. Oliver.....	Special adviser—labor relations—\$8,000.....	
Clifford Townsend.....	Special adviser—Agriculture—\$6,500.....	None. Formerly Governor of Indiana.
<b>NEGRO EMPLOYMENT AND TRAINING BRANCH</b>		
Robert Weaver.....	Chief—loan from U. S. Housing.....	
Theodore Poston.....	Public relations counsellor—loan from U. S. Housing.....	
James C. Evans.....	Labor training assistant—\$3,800.....	West Virginia State Board of Education.
Clarence R. Mitchell.....	Field assistant—\$3,800.....	St. Paul Urban League.



## LABOR DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>LABOR SUPPLY AND TRAINING BRANCH</b>		
Floyd W. Reeves.....	Chief—\$8,000 (per diem).....	University of Chicago and the American Youth Commission.
Alonzo Grace.....	Consultant \$3,800 (per diem).....	Commissioner of education, State of Connecticut.
H. C. Ramsower.....	do.....	Ohio State University.
Ralph W. Woods.....	do.....	Director of vocational education for Kentucky.
<b>TRAINING WITHIN INDUSTRY BRANCH</b>		
Channing R. Dooly.....	Chief—\$3,800 (per diem).....	Socony-Vacuum Oil Co.
J. W. Dietz.....	Associate Chief—\$3,800 (per diem).....	Western Electric Co.
Michael J. Kane.....	Training advisor—Development and Research—\$1 per annum.	Staff engineer on training and safety—American Telephone & Telegraph.
William Conover.....	Assistant on field operations—\$1 per annum.	Assistant director, United States Steel Corporation of Delaware.
Clarence G. McDavitt..	District representative—\$1 per annum.	Retired. Formerly New England Telephone & Telegraph Co. of Boston.
Ernest A. Stowell.....	do.....	Employment manager, Underwood-Elliott-Fisher Co.
Donald J. Hoose.....	do.....	The Texas Co.
Glenn L. Gardiner.....	do.....	Forstmann Woolen Co.
George G. Arthur.....	do.....	Champion Paper & Fiber Co.
J. E. McDaniel.....	do.....	Georgia School of Technology.
Paul Mooney.....	do.....	Kroger Grocery & Baking Co.
Carl S. Coler.....	do.....	Westinghouse Electric Co.
Oscar Grothe.....	do.....	White Sewing Machine Co.
Milton M. Olander.....	do.....	Owens-Illinois Glass Co. of Toledo.
C. Richard Evans.....	do.....	International Harvester Co.
Paul A. Mertz.....	do.....	Sears-Roebuck Co.
Ernest L. Olrich.....	do.....	Munsingwear Co.
A. Earl Wyatt.....	do.....	Laclede Securities Co.
George Kirk.....	do.....	Colorado Fuel and Iron Corporation.
Wm. Kerr Hopkins.....	do.....	Union Oil Co.
Alexander R. Heron.....	do.....	Crown Zellerbach Corporation.
Harris G. Winsor.....	do.....	Puget Sound Power & Light Co.
<b>LABOR RELATIONS BRANCH (AMERICAN FEDERATION OF LABOR)</b>		
Joseph Keenan.....	Labor relations counselor—\$7,500....	None. Formerly secretary, Chicago Federation of Labor.
J. L. Beckham.....	Labor relations assistant—\$4,600....	None. Formerly postmaster, Enid, Okla.
Norman Blumberg.....	do.....	None. Formerly Building and Construction Trades Council.
J. P. Meehan.....	do.....	None. Formerly with Massachusetts State Building and Construction Trades Council.
G. H. Plambeck.....	do.....	None. Formerly president, Detroit Carpenters' Local.
Ernest Quick.....	do.....	None. Formerly with Bricklayers, Masons and Plasterers International Union of America.
<b>LABOR RELATIONS BRANCH (COMMITTEE OF INDUSTRIAL ORGANIZATIONS)</b>		
John Owens.....	Labor relations counsellor—\$7,500....	None. Formerly with United Mine Workers of America.
T. F. Burns.....	Labor relations assistant—\$4,600....	None. Formerly with United Rubber Workers of America.
D. Garst.....	do.....	None. Formerly with International Union of United Auto Workers.
J. Kroll.....	do.....	None. Formerly with Amalgamated Clothing Workers.
W. Pollard.....	do.....	None. Formerly with Industrial Union of Marine and Shipbuilding Workers of America.
Gail Smith.....	do.....	None. Formerly with General Electric Co.

## LABOR DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>LABOR RELATIONS BRANCH (ADVISORY)</b>		
W. E. Chalmers.....	Principal economist—\$6,500.....	None. Formerly with Social Security Board.
P. Garman.....	Labor advisor—\$3,800.....	None. Formerly with International Printing Pressmen's Union.
<b>LABOR RELATIONS BRANCH (INDUSTRY)</b>		
E. D. Bransome.....	Consultant on labor relations—\$1 per annum.	Vice president, Vanadium Corporation of America.
Lewis S. Thompson, Jr.....	Special consultant—\$1 per annum.....	Vice president of Stance Distribution.
<b>LABOR RELATIONS BRANCH (LABOR DIS- PUTES COMMITTEE)</b>		
Eli L. Oliver.....	Chairman.....	Formerly given.
J. D. Keenan.....	Member.....	Do.
John Owens.....	do.....	Do.
E. D. Bransome.....	do.....	Do.
W. E. Chalmers.....	do.....	Do.

## PURCHASES DIVISION

<b>OFFICE OF DIRECTOR</b>		
Donald M. Nelson.....	Director—without compensation.....	None. Formerly vice president, Sears, Roebuck Co.
Douglas C. MacKeachie.....	Deputy Director—\$1 per annum.....	Purchasing director, New England and Canadian divisions, Atlantic & Pacific Tea Co.
Brig. Gen. R. H. Jordan.....	Liaison—War Department.....	
Rear Admiral Charles Conard.....	Liaison—Navy Department.....	
G. A. Renard.....	Associated with Office for Emergency Management.	
A. C. C. Hill, Jr.....	Executive officer—\$9,000.....	Guaranty Trust Co. of New York.
<b>ADVISORY COMMITTEE</b>		
A. J. Browning.....	Special adviser to Director—\$1 per annum.	President, United Wall Paper Factories, Inc.
Frank M. Folsom.....	do.....	Executive, vice president, and general manager, Goldblatt Bros., Inc.
Elmo B. Roper, Jr.....	Member of Advisory Committee—\$1 per annum.	Marketing research.
R. T. Stevens.....		President, J. P. Stevens & Co.
A. W. Zelomek.....	Member, Economic Advisory Committee—\$1 per annum.	President, International Statistical Bureau, Inc.; consultant, National Association Purchasing Agents.
Karl Fischer.....	Member—associated with Office for Emergency Management—Transportation Division.	
H. T. Crooks.....	do.....	
Isador Lubin.....	Member—loan from Labor Department.	
J. E. Hamm.....	Member—associated with Office for Emergency Management.	
S. H. Sabin.....	Member—associated with Office for Emergency Management—Agriculture Division.	
C. I. Gragg.....	Consultant—\$9,000 (per diem).....	Carnegie Institute.
<b>PLANT SITE COMMITTEE</b>		
D. M. Nelson.....	Chairman.....	Formerly given.
Clifford Townsend.....	Special adviser to Associate Director General—\$6,500.	Formerly Governor of Indiana.
E. F. Johnson.....	Member—formerly given.	
Harry Camp.....	Assistant, Contract Clearance Branch—\$1 per annum.	Executive, vice president Consolidated Millinery Corporation.
E. M. Martin.....	Assistant to chairman—loan from Labor Department.	
Sidney Weinberg.....	Consultant—\$1 per annum.....	Van Raalte Co.
A. D. Whiteside.....	do.....	Formerly given.

## PURCHASES DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>PLANT SITE COMMITTEE—Continued</b>		
Dr. Howard T. Lewis...	Special adviser to Director—\$1 per annum.	Director of research, Harvard Business School.
C. I. Gragg.....	Special consultant.....	Formerly given.
S. F. Teele.....	Consultant—without compensation.	Assistant professor of marketing, Harvard Graduate School of Administration.
Austin Grimshaw.....	do.....	Assistant professor, Harvard Business School.
<b>POST EXCHANGE COMMITTEE</b>		
Gerrit Vander Hooning..	Consultant, Food Procurement—\$8,000 (per diem).	Owner of retail food business.
<b>CONTRACT CLEARANCE BRANCH</b>		
Hiram S. Brown.....	Chief—\$1 per annum.....	President, Radio Pictures Corporation.
Harry Camp.....	Assistant.....	Formerly given.
<b>LEASE LEND CLEARANCE SECTION</b>		
H. B. Hayden.....	Head commercial specialist—\$6,500..	Formerly special assistant, Office of Chief of Air Corps, War Department.
<b>INDUSTRIAL AND STRATEGIC MATERIALS BRANCH</b>		
John P. Sanger.....	Chief—\$1 per annum.....	Vice president in charge of purchases, United States Gypsum Co.
Charles E. Smith.....	Special adviser on petroleum products—\$1 per annum.	Vice president, charge of purchases and stores in New York, New Haven & Hartford R. R. and affiliated companies.
C. E. Bertrand.....	Principal commodity specialist—\$5,600.	Formerly with U. S. Transport Service.
Porter Savage.....	\$1 per annum.....	
Samuel Flagg.....	Consultant—without compensation.	Mechanical engineer, Ebasco Services, Inc.
D. C. Swift.....	do.....	
J. G. Bell.....	Consultant—\$1.....	Executive, vice president, charge of merchandising buying, Peoples Drug Co.
F. J. Stock.....	Principal commodity specialist—\$5,600.	Formerly with Wallgren Co.
Mark Merrell.....	do.....	Formerly with Department of Labor, Industrial Committee Branch.
<b>GOVERNMENT CONSERVATION BRANCH</b>		
N. N. Harriman.....	Consultant—loan from Procurement Division.	
C. L. Warwick.....	Consultant—without compensation.	Secretary-treasurer, American Society for Testing Materials.
<b>SUBSISTENCE BRANCH</b>		
Howard B. Cunningham..	Chief—\$1 per annum.....	Director of purchases, National Biscuit Co.
Logan Morrill.....	Assistant—\$1 per annum.....	Financial counselor, Frost & Jacobs Co.
J. W. Rabb.....	Consultant, P-4—\$3,800.	Amos Parrish, Inc.
<b>PLANNING BRANCH</b>		
Eric A. Camman.....	Chief of Planning and Cost Estimate Branch—\$1 per annum.	Partner, Peat, Marwick, Mitchell & Co.
Walter C. Shorter.....	Special adviser on paper products—\$1 per annum.	Sales manager, International Paper Co.
Mead M. Messiek.....	Liaison to Quartermaster Corps—War Department—\$1 per annum.	Manager, fire stock cont. department, Montgomery Ward & Co.
F. Chapin Weed.....	Special adviser on warehousing and transportation—\$1 per annum.	Charge of warehousing and distribution and manufacturing operations, Grand Union Co.
C. A. Kelley.....	Principal administrative officer—\$5,600.	Formerly organizer and department director of Nevada-California Electric Corporation.
William A. Summerhays..	Special adviser on lumber and building materials—\$1 per annum.	Manager, Forest Products Bureau, Illinois Central R. R. Co.
S. D. Libby.....	Special adviser on building materials—CAF-12—\$4,600.	None. From Defense Housing.
Jack Babcock Davis.....	Special adviser on paint—\$1 per annum.	Vice president, Interchemical Corporation.
L. A. Jones.....	Chief commodity specialist—\$6,500..	Director of Sales, Benche Paper Co.



## PURCHASE DIVISION—Continued

	Office of Production Management position and status	Employment in private industry
<b>MOTOR TRANSPORT BRANCH</b>		
Andrew B. Bassi.....	Special adviser on motor transportation—\$1 per annum.	Active in advisory capacity with Socony Vacuum Oil Co.
<b>CLOTHING AND EQUIP- PAGE BRANCH</b>		
Walter P. Becker.....	Acting chief—\$1 per annum.....	Head buyer, J. C. Penney.
Harold Florsheim.....	Special consultant on shoes and leather—\$1 per annum.	First vice president and secretary, Florsheim Shoe Co.
J. Alfred Rice.....	Special adviser on textiles—\$1 per annum.	Sales manager, A. D. Juilliard & Co.
H. S. Parker.....	Consultant—without compensation.	Partner—sales, H. S. Parker Co.
<b>MERCHANDISE STA- TISTICS BRANCH</b>		
Amos Parrish.....	Consultant—\$5,600.....	President, Amos Parrish & Co.
Gerrit Vander Hooning.....	Consultant.....	Formerly given.
John L. Baxter.....	Special adviser on canned foods—\$1 per annum.	Member, H. C. Baxter & Bros.
J. Howard Hamilton.....	Adviser on canned foods—\$1 per annum.	Manager, sales, American Can Co.
J. P. Johnston.....	Special adviser on dairy products—\$1 per annum.	President, Dairy Sealed, Inc.
Tom F. Smith.....	Special adviser, procurement of bakery items—\$1 per annum.	Trade association executive, American Bakeries Association.
<b>PERISHABLE FOODS SECTION</b>		
John A. Martin.....	Assistant, Perishable Section—\$1 per annum.	Vice president, general manager, Wesco Foods Co.
Eric W. Searle.....	Special adviser on meats—\$1 per annum.	Meat expert, executives' offices, Safeway Stores, Inc.
A. K. Mackey.....	Principal commodity specialist—\$5,600.	Secretary-treasurer, Texas Sheep and Goat Raisers Association.
Randolph Cruzen.....	Consultant—\$10.55 (per diem).....	Great Atlantic & Pacific Tea Co.
George Shultz.....	Consultant—\$1 per annum.....	Land O'Lakes Creamery, Inc.
Horace E. Shackleton.....	Special adviser on eggs—\$1 per annum.	Director of operations, Pacific Egg Producers Corporation.
<b>EQUIPMENT AND SUPPLIES BRANCH</b>		
Donald G. Clark.....	Chief—\$1 per annum.....	Director of purchases, Gulf Oil Corporation.

The following document is included at this point in connection with testimony of Grenville R. Holden, supra, p. 852.

MEMORANDUM IN REGARD TO THE NEGOTIATIONS WITH THE SWISS ALUMINUM COMPANY OF LAUSANNE

It was announced early in the summer of 1940 that the Swiss Aluminum Company of Lausanne had made a definite decision to erect an aluminum reduction plant in this country and also mills for the production of semimanufactured aluminum products, such as sheets, coils, sections, etc. This project was to be financed entirely by Swiss interests. The American agents were W. S. Hamnett and Co., Inc., of New York.

The Advisory Commission to the Council of National Defense cooperated with the Swiss interests and arranged for the provision of suitable electric power.

During the course of the negotiations with the Swiss interests, the Federal Government reached an agreement with the Reynolds Metals Company covering the erection of aluminum plants by that company.

As a result of this agreement, the Swiss interests decided not to proceed with their project.



# INDEX

	Page
A. C. F. Motors Co.....	971
Adams, Charles E.....	782-783, 972
Adams, Frederick B., Jr.....	977
Adams, James S.....	977
Advisory Commission to the Council of National Defense.....	713,
716, 718, 720, 722, 728, 730, 739, 746, 753-754, 764, 783, 804, 815,	
824-825, 828, 841, 853, 878, 902, 937, 964-965.	
Aeronautical Chamber of Commerce.....	982
Age limits, desirability of raising for skilled workers.....	731-733
Ager, Paul W.....	962-965
Air Corps, United States Army.....	721, 726, 730, 733, 855-856
Air Reduction Co., Inc.....	782, 972
Airplanes, German, use of magnesium in.....	717
Alabama Power Co.....	954
Alcoa. (See Aluminum Co. of America.)	
Alexander, W. W.....	983
Allegheny Ludlum Steel Corporation.....	981
Allen Corporation.....	978
Allen, R. C.....	976
Allied Engineers and Architects.....	962
Almy, Capt. E. C.....	982
Aluminium Industrie Aktiengesellschaft.....	931
Aluminium, Ltd.....	788, 928-929, 931-932
Corporate structure of.....	932-936
Production. (See Aluminum Co. of Canada.)	
Stock ownership of.....	932
aluminum:	
Alloy, use of magnesium in.....	717, 790-791
Amount used by Germans in 1938.....	718
Costs.....	728-729, 760, 810-812
Estimates of demand. (See Estimates of demand, aluminum.)	
Fabrication, cost of.....	728-729
Foreign companies.....	788-789
How made. (See Aluminum, processing of from bauxite.)	
Lack of, for civilian use in 1942.....	715
Loans obtained from Reconstruction Corporation by Reynolds Metals	
Co. for production of.....	750-753, 755
Organization, question of amount necessary to produce.....	857-860
Prices.....	721, 723, 744-746, 760-762, 796, 913
In World War I.....	744
Priorities.....	755-760, 764-782
Allocation of aluminum under.....	773-778
For automobiles.....	757-758, 760
For food products.....	757-758
Outline, general, of.....	764-771
Processing of, from bauxite.....	717-720
Production.....	713-714, 717-720, 724, 734-763,
783-786, 810-812, 872-875, 877-880, 900-901, 912	
Aluminum Co. of America. (See Aluminum Co. of America,	
production.)	
Capacity, June 1940.....	713-714
Competition in, Senator Mead's statement re necessity for en-	
couraging.....	861-862
Costs.....	760, 810-812
In Canada.....	928-932
In foreign countries.....	931
Need for ample supply of power for.....	877-893



	Page
Aluminum—Continued.	
Requirements in May 1941	713-716
Reserves	717, 738-741
Shortage of	713-717
Stocks, shortage of in United States	749-750
Waterpower used in production of	718-720, 724, 791-794
Aluminum and Magnesium Priorities Committee, Office of Production Management:	
Membership of and prior industrial connections	771-777, 782
Negotiations preceding appointment of	943-945
See also Office of Production Management.	
Aluminum Association	944
Aluminum Co. of America	713,
718, 734, 747, 761, 767-768, 772-773, 781-783, 785, 825, 836-838,	
853-855, 857, 859, 861-864, 870, 873, 875, 878-879, 882, 891-894,	
929-931, 933, 936, 944-946, 950, 953, 970-974.	
Bauxite stocks held by	786-788, 797-802
Cheoah Dam	958
Deliveries	812-822, 827-833
Earnings and costs	922-928
Failure to supply information requested by committee, question of	895-900, 904-906
Financial statements of	906-908
Fontana, N. C., power project (See Fontana, N. C., water-power project.)	
Glenville power project	793, 842, 865, 869
Indictment against	736-745
Loans, long-term, question of obtaining	924-925
Monopoly by, question of	886-889, 893
Nantahala power project	793, 842, 865
Plants:	
Alcoa, Tenn.	719, 797, 804, 860, 865, 938, 951, 957
Badin, N. C.	938, 951
East St. Louis, Mo.	784
Massena, N. Y.	716, 719, 728, 811, 886-887, 912, 915, 941
Mobile, Ala.	784
New Kensington, Pa.	723-724
Vancouver, B. C.	719, 849, 880, 941
Priorities, effect on production of	776-780
Production	783-786, 810-812, 900-901, 912-920
Capacity	726-729
Costs	810-812
Increase in, question of	912-922, 940-943
Question of being only "dependable" producer of aluminum	848-852
Relations with Reynolds Metals Co.	750-756
Restriction of production, opinion of Secretary of the Interior Ickes re	884
Statement by officer of, outlining company's position	900-904
Tuckertown power project	866
Waterpower owned by	793-794
Aluminum Co. of Canada, Ltd.	788-790, 886
Exports	930, 936
Prices received	935
Production	929-932
Stock ownership, question of	929
Aluminum companies of Germany	788-789
Alunite:	
Production, cost of	886
Reserves of	885-886
Source possible, of magnesium	720
Substitute, possible, for bauxite in aluminum production	786-787, 801, 920
Alunite Co.	801
Amalgamated Clothing Workers of America	983, 984
American Airlines, Inc.	982
American Bakeries Association	987
American Bemberg Corporation	976
American Can Co.	987
American Federation of Labor	980
American Gas & Electric Co.	954, 960-961

	Page
American Iron & Steel Institute.....	981
American Locomotive Co.....	733
American Magnesium Corporation.....	736-738, 791
American Oil Co.....	977
American Society for Testing Materials.....	986
American Telephone & Telegraph Co.....	979, 980, 984
American Youth Commission.....	984
Appropriations Committee, United States House of Representatives.....	950
Arcrods Corporation.....	977
Armco International Corporation.....	977
Armstrong Cork Co.....	983
Arkansas Power & Light Co.....	953
Army and Navy Munitions Board.....	764, 767, 824, 826, 973, 975
Army, United States.....	714, 728, 730, 732,
	752, 771, 795, 821, 825-827, 837-839, 843, 856, 901, 916, 943, 973
Arnold, Thurman W.....	879
Arthur, George G.....	984
Association of Cotton Textile Merchants.....	977
Austin Bridge Co.....	979
Austria.....	739, 745
Automobile Manufacturers Association.....	983
Avery, Clarence W.....	979
Axis Powers.....	864-865
Bailey, H. L.....	983
Baldwin Locomotive Works.....	733
Barber, Mary I.....	979
Barney, E. J.....	772, 782, 972, 974, 981
Bassi, Andrew B.....	987
Batcheller, H. J.....	981
Batt, William L.....	794, 798, 836, 842, 863, 877, 917-918, 975, 976
Bauer, Edward K.....	977
Bauxite:	
Deposits of in Arkansas.....	717, 786-790, 801
Importation of from Dutch Guiana.....	717, 787-790, 799-801, 934
Low-grade, Standard Aluminum & Alloy's plan for making aluminum from.....	872-875
Processing of aluminum from.....	717-720
Reserves.....	738-741, 786-787, 790
Stocks:	
Held by:	
Aluminum Co. of America.....	786-788, 797
Reynolds Metals Co.....	751
Shortage of in United States.....	749-750
Baxter (H. C.) & Bros.....	987
Baxter, John L.....	987
Bayer process.....	872
Becker, Walter P.....	987
Beckham, J. L.....	984
Bell, J. G.....	986
Bell, W. Ray.....	977
Benche Paper Co.....	986
Bertrand, C. E.....	986
Bethlehem Steel Co.....	976
Biggers, John D.....	976
Bills of materials, question of use of by Office of Production Management in making estimates of demand for aluminum.....	837-838
Birmingham Electric Co.....	954
Blanding, Camp.....	875
Blumberg, Norman.....	984
Bodman, H. T.....	977
Boeing airplanes.....	716, 723, 812
Bogle Chemical Co.....	962
Bohlman, Murray.....	978
Bohn Aluminum & Brass Corporation.....	855, 857-859
Offer to operate aluminum production plant for Government.....	841-
	843, 851-852

	Page
Bonneville Dam.....	719, 723-727, 741, 744-746, 753, 795, 797, 802-804, 810-811, 825, 836, 848-851, 879-880, 885, 902, 941, 950
Bonneville Power Authority.....	795, 825, 880
Boulder Dam.....	807, 884-885
Bowles, Rebecca.....	956
Boyce, C. W.....	977
Boyer, Harold R.....	978
Bradley patent.....	789
Brainard, George C.....	979
Brainerd, R. S.....	978
Brand, E. A.....	977
Brandt, E. C.....	978
Brandwen, Maxwell.....	983
Bransome, E. D.....	985
Brazil.....	735, 790
Bricklayers, Masons, and Plasterers International Union of America.....	984
Bridgeport Leather, Inc.....	978
Brill, J. G.....	971
British Aluminium Co., Ltd.....	789, 931
British Government.....	735, 934-935
British Guiana.....	934-935
Britton, Mason.....	978
Brockman, B. N.....	978
Brooklyn Polytechnic Institute.....	982
Brown, D. V.....	976
Brown, Hiram S.....	986
Brown (Percy A.) & Co.....	979
Brown, Wiser.....	791
Browning, A. J.....	985
Browning, Edward, Jr.....	980
Bryan, R. F.....	983
Bryant, H. W.....	977
Buckley, Sydney.....	978
Budget, Bureau of.....	886, 959, 983
Building and Construction Trades Council.....	984
Bullard Co.....	978
Bullshead Dam.....	884
Bunker, Arthur H.....	918, 950-951
Burns, M. J.....	982
Burns, T. F.....	984
Business, small. ( <i>See</i> Small business.).....	
Byerly, F. B.....	980
Byron, Major J. W.....	977
Byron (W. D.) & Sons.....	977
Cabinet, of the President of the United States.....	817, 878
Cabot, F. H.....	976
California Institute of Technology.....	978
Camman, Eric A.....	986
Camp, Harry.....	985, 986
Canada.....	716, 725, 735, 745, 811, 870, 935-936, 947
Aluminum production in.....	928-932
Canadian Government.....	728, 823, 871, 886, 934-935
Canadian Industries, Ltd.....	978
Capone, Al.....	910
Carey, Baxter & Kennedy.....	979
Carey, J. B.....	980
Carey, W. F.....	979
Carlson, Lt. Comdr. O. L.....	982
Carmen, F. H.....	983
Carnegie-Illinois Steel Corporation.....	977
Carnegie Institute of Technology.....	977, 980, 985
Carolina Power & Light Co.....	953-954
Caskie, Marion M.....	750
Castleman, Capt. Kenneth G.....	964
Caterpillar Tractor Co.....	982
Catlin Farish Co.....	977
Cave, E. P.....	983



	Page
Cavin, J. P.....	983
Central Valley power project.....	886-887
Chalmers, W. E.....	985
Chamber of Commerce of:	
Buffalo.....	871
Los Angeles.....	884
Champion Paper & Fiber Co.....	984
Chapman, E. S.....	978
Chase National Bank.....	980
Cheoah Dam, Alcoa.....	958
Cherokee power project.....	937, 939
Chesapeake & Potomac Telephone Co.....	979
Chevrolet Motor Co.....	978
Chicago Federation of Labor.....	984
Chicago <i>Herald-American</i> .....	977
Chrysler Corporation.....	733, 978
Church, John A.....	977
Cincinnati Milling Machine Co.....	978, 982
Clapp, Gordon R.....	956, 962-965
Clark, Charles P.....	897
Clark, Donald G.....	987
Cliffe, Frank B.....	735, 837, 843, 970, 972-976, 981
Coler, Carl S.....	984
Coigate-Palmolive-Peet Co.....	977
Colorado Fuel & Iron Corporation.....	984
Columbian Vise & Manufacturing Co.....	978
Combustion Engineering Co.....	962
Committee, United States Senate, Investigating the National Defense Pro- gram, functions and accomplishments of, statement by Senator Mead.....	821-823
Commonwealth & Southern Corporation.....	745
Competition in production of aluminum, Senator Mead's statement re necessity of encouraging.....	861-862
Conard, Rear Admiral Charles.....	985
Congress of Industrial Organization.....	980
Congress, United States.....	714, 718, 739, 766-767, 779, 806-807, 809, 816-817, 821, 865, 882, 900-901, 937, 939, 952, 959
Conover, William.....	984
Consolidated Edison Co.....	977, 982
Consolidated Millinery Corporation.....	985
Continental Can Co.....	981
Continental Illinois Bank & Trust Co.....	980
Continental Oil Co.....	977
Conway, C. C.....	981
Cooke, Morris L.....	983
Corn Products Refining Co.....	976
Cornell College of Engineering.....	982
Cornell, I. H.....	981
Cortesi, Roger.....	951-952
Costs, aluminum.....	728-729, 760, 810-812
Council of National Defense.....	754
<i>See also</i> Advisory Commission to the Council of National Defense.	
Cravath, de Gersdorff, Swaine & Wood.....	976
Creighton, Albert M.....	979
Crooks, H. T.....	985
Crown Zellerbach Corporation.....	984
Crucible Steel Co.....	977
Cruzen, Randolph.....	987
Cunningham, Howard B.....	986
Cupples Manufacturing Co.....	979
Curtis, Charles E.....	979
Curtiss-Wright Corporation.....	977
Dairy Sealed, Inc.....	987
Danekind, A. C.....	978
Dartmouth College.....	772, 776, 980
Davis, Arthur V.....	750, 752, 755, 906
Davis, Clyde.....	979
Davis, Jack Babcock.....	986

	Page
de Chazeau, M. G.....	976
Defense housing.....	986
Defense Plant Corporation.....	882-883
Delahanty, Commander F. P.....	983
Den Uyl, S. D.....	843
Denison Dam.....	887
Detroit carpenters' local.....	984
Dietz, J. W.....	984
District Court, United States, Southern District of New York.....	721, 736, 753, 866
Doehler Die Casting Co.....	862
Doherty, R. E.....	980
Dollar-a-year-men in Office of Production Management, list of.....	777, 976-987
Dominick, G. G.....	980
Dooly, Channing R.....	984
Douglas airplanes.....	723
Dow Chemical Co.....	721-722, 735-738, 791, 796, 858
Draper, Gov. E. G.....	979
Duke Power Co.....	953-954
Dun & Bradstreet.....	980
Dunbar, H. W.....	978
Dunn, Gano.....	976
Dunn, J. V.....	979
du Pont (E. I.) de Nemours & Co.....	772, 776, 788, 962
Dutch Guina.....	717-718, 723, 734-735, 739, 786-787, 790, 801, 823
East, J. D.....	976
Eastman Kodak Co.....	824, 828, 835, 849, 853, 862-863, 976
Inventories of aluminum for all plants of.....	829
Ebasco Services, Inc.....	986
Edison Electric Institute.....	976
Edison (Thomas A.), Inc.....	980
Egg White Products Co.....	979
Einig, A. B.....	978
Eisendrath, W. B.....	983
Eldridge, Mark.....	979
Electro Metallurgical Co.....	962
Elliman, G. T.....	976
Elliott, Harriet.....	772
Elliott, Wm. Y.....	976
Ely & Walker Dry Goods Co.....	983
Emigh, Howard.....	855-856
Engelsted, Knud.....	978
England.....	714, 729, 820-821, 935
Erlicher, H. L.....	981
Estimates of demand, aluminum, 1940-42.....	714-716, 726-727, 812-821, 824-843, 901
By Office of Production Management.....	836-842
Outline of Office of Production Management's position re.....	824-843
Question of use of bills of materials by Office of Production Management in making.....	837-838
Evans, C. Richard.....	984
Evans, James C.....	983
Everest, D. C.....	977
Ewing, Oscar R.....	844-847, 861, 945, 948
Exhibits. For description of, see Schedule of exhibits, page v, following table of contents.	
Fabrication, aluminum. ( <i>See</i> Aluminum, fabrication.)	
Fairmont Aluminum Co.....	772-773, 782, 944, 981
Farrell, R. G.....	772-773, 782, 944, 972, 981
Fawcett, M. L.....	978
Federal Bureau of Investigation.....	972
Federal Licensing Act.....	916
Federal Power Commission.....	725, 804-808, 845-846, 866-871, 878, 884, 886, 888, 901, 909-911, 915-920, 937, 948-949, 952-954, 957, 959, 964
Interest of, in relationship between power and aluminum.....	864-865
Federal Reserve bank.....	979
Federal Reserve System.....	979

	Page
<i>Federal Water Power Act</i> .....	806, 865, 867, 909, 964-965
Ferrand, Louis.....	968
Finance, United States Senate Committee on.....	776, 936
Finch, Van Slyke & McConville.....	979
Finger, W. L.....	977
Fischer, Karl.....	985
Fisher Body Corporation.....	962
Fitts, William C., Jr.....	962-965
Flagg, Samuel.....	986
Fleming, Col. Phillip B.....	893
Florida power systems.....	953
Florsheim, Harold.....	987
Florsheim Shoe Co.....	987
Flow metal, aluminum.....	754
Folger, Wayne H., Jr.....	978
Folsom, Frank M.....	985
Folsom, Marion B.....	765-766, 836-837, 841, 862, 917-918, 943-944
Fontana, N. C., waterpower project, contemplated project by Aluminum Co. of America.....	803-811, 842-847, 864-868, 884, 901, 905-911, 916-919, 923, 941, 948-949
Decision to abandon.....	803-809
Effect of Federal licensing requirements on.....	865-868
Tennessee Valley Authority's views re.....	937-940
Unwillingness of Aluminum Co. of America to build with own capital.....	843-847, 908-911
Withdrawal of application with Federal Power Commission.....	806-808
Force, R. C.....	979
Ford, Bacon & Davis.....	981
Ford Motor Co.....	729-730
Foreign and Domestic Commerce, Bureau of.....	976, 981
Forstmann Woolen Co.....	984
Fort Loudoun Dam.....	959
France.....	714, 739, 745, 749-750, 853, 936
French Aluminum Co. ( <i>See L'Aluminium Francais.</i> ).....	
French Government.....	872
Frost & Jacobs Co.....	986
Fuller, S. R., Jr.....	976
Fulton, Hugh A.....	971
Gangwere, E. D.....	982
Gardiner, Glenn L.....	984
Garman, P.....	985
Garst, D.....	984
Gas, natural. ( <i>See Natural gas.</i> ).....	
Gates, Thomas S.....	979
Gaudy, B. J.....	847, 966, 968
Gawne, Capt. J. O.....	979
Geier, F. V.....	982
General Aniline & Film Corporation.....	736, 791
General Chemical Co.....	788
General Electric Co.....	730, 779, 976, 978-981, 984
General Fireproofing Co.....	979
General Motors Corporation.....	772, 776, 782, 962, 977, 980-981
General Public Service Corporation.....	976
Geological Survey, United States.....	739
Georgia Power Co.....	953-954
Georgia School of Technology.....	984
German:	
Airplanes, use of magnesium in.....	717
Use of aluminum, 1938.....	718
German Aluminum Cartel.....	822
<i>See also Vaw companies.</i>	
Germany.....	716, 733, 736-739, 745, 749-752, 786, 788-791, 877, 883, 903
Gibbons, G. R.....	843, 846, 861-863, 895, 904-907
Giddings & Lewis Machine Tool Co.....	978
Gisholt Machine Co.....	978
Glancy, A. R.....	978



	Page
Glancy (A. R.), Inc	978
Glenville power project, Alcoa	793, 842, 865, 869
Goldblatt Bros., Inc	985
Goldschmidt, Arthur	883, 886, 892
Government, United States	719-720, 723, 727, 729, 731, 739-744, 750, 752, 763, 793-797, 800, 803-805, 808-812, 816- 818, 821-823, 835, 841-844, 852, 862, 866-867, 871, 879-883, 887- 888, 891-892, 894, 901-903, 909-917, 939-945, 947, 951, 963-965
Grace, Alonzo	984
Gragg, C. I.	985, 986
Grand Coulee Dam	720, 725, 727, 802, 805, 807, 880, 884
Grand River Dam Authority	887, 950
Grand Union Co.	986
Gray, B. A.	983
Great Atlantic & Pacific Tea Co. of America	984
Great Britain	745, 870, 877, 879, 934, 936
Greece	739
Gregg, J. P.	980
Grimshaw, Austin	986
Groggins, P. H.	982
Gross, Maj. M. E.	982
Grothe, Oscar	984
Growden, James P.	937, 939, 948-949, 956-957
Guaranty Trust Co. of New York	985
Gulf Oil Corporation	987
Gulf Power Co.	954
Hackett, S. E.	976
Halcomb, Charles	982
Hamilton, J. Howard	987
Hamm, J. E.	985
Hardigg, Lt. Col. Carl	983
Hardware & Supply Co.	978
Hardy (Chas.), Inc	976
Harriman, N. N.	986
Harris, Herbert	983
Harrison, W. H.	979
Hartz, W. H.	979
Harvard University	835, 853, 976
School of Business Administration	980, 986
Hauck, W. A.	976
Hawaiian Pineapple Co.	980, 982
Hawkins, L. R.	982
Hayden, H. B.	986
Hayes, Col. T. J.	982
Hayes, Frank W.	978
Heald Machine Co.	978
Heiss, Maj. G. K.	976, 983
Henderson, A. I.	762-763, 765, 947, 957, 959, 961, 963, 976, 980
Henderson, Leon	744
Hendren, Capt. Paul	980
Heron, Alexander R.	984
Hershey Chocolate Corporation	757-758
Hess, Rudolph	821
High Lawn Farm	976
Hill, A. C. C., Jr.	985
Hill-Clarke Machine Co.	978
Hill, Senator Lister	749-750
Hillman, Sidney	764, 939, 957, 964, 983
Hitchcock, H. W.	979
Hitler	816
Hiwassee power project	939, 951, 958-961
Hocker, G. F.	976
Holden, Grenville R.	766-767, 808, 845, 867, 873, 916-917, 948, 951-952, 972, 976
Holland, Robert	979
Holmes, R. S.	982
Holston River power project	939, 961
Holtzelaw, J. G.	979

	Page
Home Owners' Loan Corporation.....	979
Hook, Henry C.....	978
Hooning, Gerritt Vander.....	986, 987
Hoose, Donald J.....	984
Hopkins, Dr. Ernest M.....	772-773, 776, 782, 972, 975, 980-981
Hopkins, H. L.....	980
Hopkins, Wm. Kerr.....	984
Howe, H. E.....	981, 982
Hughes, Richards, Hubbard & Ewing.....	945, 948
Hull, B. D.....	979
Hydroelectric Commission of Ontario.....	870
Hydroelectric power. (See Waterpower.)	
I. G. Farben (Interessengemeinschaft Farbenindustrie Aktiengesellschaft).....	736-738, 746, 788
Ickes, Hon. Harold L.....	753, 873, 900, 902-903, 920, 946
Illinois Bell Telephone Co.....	979
Illinois Central Railroad Co.....	986
Indictment, Department of Justice Antitrust Division, against magnesium trust.....	735-738
Industrial and engineering chemistry.....	981
Industrial Union of Marine and Shipbuilding Workers of America.....	984
Ingebretson, James C.....	884
Ingersoll, F. B.....	789, 940
Interchemical Corporation.....	986
Interior, United States Department of the.....	878, 880, 887
Bureau of Reclamation.....	884
Power Policy Committee.....	883
Secretary of.....	872-873, 877, 883
International Business Machine Corporation.....	980
International Harvester Co.....	984
International Nickel Co.....	981
International Paper Co.....	986
International Printing Pressmen's Union.....	985
International Shoe Co.....	983
International Statistical Bureau, Inc.....	985
International Union of United Auto Workers.....	984
Italy.....	729, 745, 931
Ithaca Savings Bank.....	982
Janssen, W. A.....	981
Japan.....	931, 936
Jeppson, John.....	978
Jeffries, Zay.....	856
Johnson, A. C.....	979
Johnson, E. F.....	977, 985
Johnston, J. P.....	987
Jones, Fred.....	979
Jones (Fred) Automobile Distributors.....	979
Jones, Jesse.....	752-753, 763, 793
Jones, L. A.....	986
Jones-Lamson Co.....	978
Jones & Laughlin Steel Corporation.....	976
Jordan, Brig. Gen. R. H.....	985
Jouett, Col. J. H.....	982
Journal, American Mining Congress.....	977
Jugoslavia.....	739
Juilliard (A. D.) & Co.....	987
Justice, United States Department of.....	723, 736, 739-740, 743
Kahler, W. V.....	979
Kaiser (Co.). (See Permanente Corporation.)	
Kaiser, Henry J.....	720
Kampmeier, —.....	956
Kane, Michael J.....	984
Kearney & Trecker Corporation.....	978
Keenan, Joseph.....	984, 985
Kelley, C. A.....	986
Kellogg, C. W.....	878, 960, 976
Kellogg Co.....	979

	Page
Kimball, D. S. ....	982
Kirk, George .....	984
Knight, W. W., Jr. ....	978
Knudsen, William L. ....	722, 764, 836, 845, 939, 957, 965
Kraft Paper Association .....	977
Kroger Grocery & Baking Co. ....	984
Kroll, J. ....	984
Krug, J. A. ....	948-950, 952, 955-957, 959-960, 962-965
Kuhn, H. H. ....	978
Kuhn, W. Grove .....	978
Labor, United States Department of .....	983, 986
Laclede Securities Co. ....	984
Lafin, Donald L. ....	978
Laird, E. C., Jr. ....	972, 980
L'Aluminium Francais .....	749, 789-790, 931
Land, Admiral E. S. ....	979
Land O'Lakes Creamery, Inc. ....	987
Landis Tool Co. ....	978
Laval, Phillippe .....	749, 752
Le Bloud (R. K.) Machine Tools .....	978
Legislative, State of Maine .....	894
Lehigh University .....	978
Lehman Bros. ....	919
Lehman, Herbert H. ....	919
Leith, Andrew .....	976
Leith, Charles K. ....	976
Letters patent, United States .....	872
Levis, W. E. ....	980
Lewis, Dr. Howard T. ....	986
Lewis, J. C. ....	981, 983
Lexington Water Power Co. ....	954
Libbey-Owens-Ford Glass Co. ....	976
Libby, S. D. ....	986
Licensing requirements, effect of on Aluminum Co.'s projected Fontana power development .....	865-868
Lilienthal, David E. ....	950, 962-965
Littlejohn, Lt. Col. R. McG. ....	983
Locke, E. A., Jr. ....	980
Lockheed airplanes .....	723
Logan, Lt. Comdr. D. M. ....	772, 974, 981
Lombard, A. E., Jr. ....	812-813, 978
Lord, Maj. H. S. ....	982
Louisiana Fower & Light Co. ....	953
Lubin, Isador .....	772, 983, 985
Luce, M. J. ....	979
Lukens Steel Co. ....	977
Lund, R. J. ....	977
Lynch, R. J. ....	980
Lynge, Carl M. ....	979
Lyon, Col. A. J. ....	771, 972-973, 975, 981
MacKeachie, Douglas C. ....	985
Mackey, A. K. ....	987
Magnesium:	
Permanente process for producing .....	720
Production, annual .....	720-723, 858
Sources of .....	720
Alunite as possible source of .....	720
Use of:	
In aluminum alloy .....	717, 790-791
In German planes .....	717
Magnesium Development Corporation .....	736-738
Magnesium Trust, memorandum of indictment against .....	735-738
Manufacturing Chemists Association .....	982
Marathon Paper Mills .....	977
Maritime Commission .....	979
Marks, Herbert S. ....	952



	Page
Marshall & Huschart Machine Co.....	978
Martin, E. M.....	972, 985
Martin, John A.....	987
Martin, L. J.....	980
Mason, E. S.....	976
Massachusetts Institute of Technology.....	856, 920, 976
Massachusetts State Building and Construction Trades Council.....	984
Masters, H. K.....	976
Matthiessen, C. H.....	980, 982
May, Stacy.....	877
Mayflower Associates.....	977
McAdoo, H. M.....	977
McConnell, R. E.....	977
McCormick, E. T.....	772, 974-975, 981
McCrary, L. deB.....	978
McDaniel, J. E.....	984
McDavitt, Clarence G.....	984
McElroy, M. Lowell.....	976
McFadden (George H.) & Bro.....	980
McGowin, E. M.....	977
McGraw-Hill Publishing Co., Inc.....	978
McKernan, John F.....	979
McNary, Senator Charles L.....	878
Mead, George J.....	979
Meade, W. W.....	978
Meany, George.....	980
Meehan, J. P.....	984
Mehornay, R. L.....	979
Meigs, M. C.....	977
Mellon Institute.....	977
Mellon interests.....	890
Memphis Gas Light and Water Division.....	979
Merrell, Mark.....	986
Mertz, Paul A.....	984
Messick, Mead M.....	986
Metcalfe, A. R.....	979
Michigan Alkali Co.....	978
Midwest-Radiant Corporation.....	979
Military Affairs, United States Senate Committee on.....	750, 756
Mines, United States Bureau of.....	738-739,
Yearbook.....	787, 854, 856, 872, 875, 883, 885, 970, 976
Minton, Lt. Col. H. C.....	980
Mississippi Power Co.....	953-954
Mitchell, Clarence R.....	983
Moffett, George M.....	976
Monarch Leather Co.....	983
Monopoly, question of Aluminum Co. of America's.....	886, 888-889, 893
Monrad, C. C.....	977
Monsanto Chemical Co.....	962
Montgomery Ward & Co.....	986
Mooney, Paul.....	984
Moore, Charles R.....	979
Morgan, Maj. C. V.....	982
Morgan, D. P.....	977, 981
Morgan Frog & Crossing Works.....	979
Morgan, Harcourt A.....	939, 959, 962-965
Morgan interests.....	890
Morrill, Logan.....	986
Motch & Merryweather Machinery Co.....	978
Moulton (S. A.) Corporation.....	962
Munsell, Eugene, Co.....	977
Munsingwear Co.....	984
Murray Corporation of America.....	979
Murrie, W. F. R.....	758
Myers, C. J.....	979

	Page
Myers Motor Co.....	979
Nantahala Power & Light Co.....	864-866, 909, 948
Nantahala power project, Alcoa.....	793, 842, 865
National Academy of Sciences.....	856
National Association of Purchasing Agents.....	985
National Bank of Detroit.....	977
National Biscuit Co.....	986
National Lumber Manufacturers Association.....	977
National Paint, Varnish and Lacquer Association.....	982
Natural gas, Standard Aluminum & Alloy Co.'s plan for using for alumi- num production power.....	872-875
Navy, United States.....	714, 728, 730, 732, 752, 768, 771, 795, 821, 825-827, 837-838, 901, 916, 943-944, 973
Navy, United States Department of the.....	736, 817, 946
Secretary of.....	873
Neely, Frank H.....	979
Neilson (A. C.) Co.....	980
Nelson, Donald M.....	877, 985
Neuhausen Co. (Swiss Aluminum Co.).....	931
Nevada-California Electric Corp.....	986
New England Telephone & Telegraph Co.....	979, 984
<i>New River Case</i> .....	919, 938
New York, New Haven & Hartford, R. R.....	986
New York Power Authority.....	886
New York Stock Exchange.....	979
Niagara Falls, N. Y., potential power available at.....	724-725, 823
Niagara Falls Power Co.....	823, 871
Niagara Hudson Power Corporation.....	941
Nichols Co.....	979
Nichols, J. C.....	979
Nicol, Eric A.....	983
Niles-Bement-Pond Co.....	978
Norfolk Dam.....	887
Norris Dam.....	865, 939
North Mehornay Furniture Co.....	979
Norton Co.....	788, 978
Norway.....	739, 745
Nova Tool Co.....	978
O'Brian, John Lord.....	733
Office for Emergency Management.....	744
Office of Production Management.....	762, 792-795, 798, 803-804, 808, 812-818, 821-822, 867, 872-876, 880- 884, 889, 892, 901-902, 915-916, 919-920, 923, 925, 938-941, 945- 946, 948, 953-960, 964.
Bureau of Research and Statistics.....	838-839
Director of.....	877
Estimate of demand, aluminum.....	824-843
Labor Division:	
Labor Relations Branch:	
Advisory.....	985
American Federation of Labor.....	984
Committee of Industrial Organizations.....	984
Industry.....	985
Labor Disputes Committee.....	985
Labor Supply and Training Branch.....	984
Negro Employment and Training Branch.....	983
Office of the Director.....	983
Training within Industry Branch.....	984
Priorities Division.....	715, 764-783, 820, 973, 975
Aluminum and Magnesium Branch.....	835-864, 981
Priority Committee.....	755-756, 758-759, 771, 775, 780, 782, 918, 943-944, 971-975, 981
Chemicals Group.....	981
Priority Committee.....	982
Commercial Aircraft Group.....	982
Priority Committee.....	982
Ferrous Alloys and Minerals Branch.....	981
Priority Committee.....	981

## Office of Production Management—Continued.

Priorities Division—Continued.	Page
General Equipment Priority Committee.....	982
General Products Group.....	982
Hides, Skins, and Leather Priority Committee.....	983
Iron and Steel Branch.....	980
Priority committee.....	980-981
Machine tools branch.....	982
Priority committee.....	982
Minerals and metals group.....	824, 841, 852, 980
Priority committee.....	980
Nonferrous metals and minerals branch.....	981
Priority committee.....	981
Office of Director.....	980
Rubber branch.....	983
Priority committee.....	983
Textile priority committee.....	983
Tools and equipment group.....	982
Priority committee.....	982
Production Division.....	713-747
Aircraft, ordnance and tools branch.....	824, 977-979
Defense contract service.....	730, 979-980
Materials branch.....	947, 950-951, 963, 976-977
Office of Director.....	976
Production planning board.....	980
Shipbuilding, construction, and supplies branch.....	979
Purchases Division:	
Advisory committee.....	985
Clothing and equipage branch.....	987
Contract clearance branch.....	986
Equipment and supplies branch.....	987
Government conservation branch.....	986
Industrial and strategic materials branch.....	986
Lease-lend clearance section.....	986
Merchandise statistics branch.....	987
Motor transport branch.....	987
Office of Director.....	985
Perishable foods section.....	987
Planning branch.....	986
Plant site committee.....	985-986
Post exchange committee.....	986
Subsistence branch.....	986
Sources of technical knowledge used by.....	853-857
Ogelbay-Norton Co.....	976
Ohio State University.....	984
Oil, transportation to East, question of.....	890-891
Olander, Milton M.....	984
Olds, Leland.....	948
O'Leary, A. J.....	977
Oliver, Eli L.....	983, 985
Olrich, Ernest L.....	984
O'Mahoney, Senator Joseph C.....	874, 879
Ontanagon Fibre Corporation.....	977
Orris Bros. & Co.....	977
Osborn, C. E.....	977
Osborne, L. E.....	978
Overlock, J. L.....	980
Owen, Marguerite.....	962-965
Owens-Illinois Glass Co.....	980, 984
Owens, John.....	984, 985
Pacific Egg Producers Corporation.....	987
Pacific Gas & Electric Co.....	886-887
Pan American Petroleum & Transport Co.....	977
Parker, H. S.....	987
Parker (H. S.) Co.....	987
Parker, John C.....	977, 982
Parker, T. B.....	962-965
Parrish, Amos.....	987



	Page
Parrish (Amos) & Co.....	986, 987
Passamaquoddy Dam.....	893
Patterson, Hon. Robert P.....	950
Peat, Marwick, Mitchell & Co.....	986
Peix, Charles.....	978
Penney (J. C.) Co.....	987
Pennsylvania State College.....	981
Pennzoil Co.....	977
Pensacola Dam.....	887
Penton Publishing Co.....	978
Peoples Drug Co.....	986
Permanente Corporation.....	720, 722, 735, 746, 796, 801
Permanente Process.....	720
Perris, Norris M.....	978
Petroleum Coordinator.....	891
Pierce-Arrow Motor Car Co.....	733
Plambeck, G. N.....	984
Poland.....	853
Pollard, W.....	984
Pope, James P.....	962-965
Porter, J. Roy.....	978
Poston, Theodore.....	983
Power:	
Electric, civilian curtailment, question of.....	892
Fontana, N. C., project. (See Fontana, N. C., waterpower project.)	
Natural gas.....	872-875
Rates in aluminum production.....	741-746
Water. (See Waterpower.)	
Powers, Lt. Col. E. M.....	977
Pratt & Whitney Aircraft Division, United Aircraft Corporation.....	812
Pratt, J. L.....	980
President of the United States.....	726, 732, 740, 764, 815, 817, 900, 952
Prices, aluminum. (See Aluminum prices)	
Price, T. H.....	978
Price, Waterhouse & Co.....	980
Prime, Lt. N. S.....	982
Priorities Committee, Office of Production Management. (See Aluminum and Magnesium Priorities Committee.)	
Priorities Division, Office of Production Management:	
Establishment of.....	765-766
Priorities on aluminum.....	755-760, 764-782
Allocation of aluminum under.....	773-779
For automobiles.....	757-758, 760
For food products.....	757-758
Outline, general, of.....	764-771
Processing, aluminum, from bauxite. (See Aluminum, processing of, from bauxite.)	
Procter & Gamble Distributing Co.....	982
Production, aluminum. (See Aluminum, production.)	
Public Works Administration.....	887, 893, 979
Puget Sound Power & Light Co.....	984
Pullman Co.....	733
Quick, Ernest.....	984
R. F. C. (See Reconstruction Finance Corporation.)	
Rabb, J. W.....	986
Radio Pictures Corporation.....	986
Ramsey, Capt. D. C.....	982
Ramsower, H. C.....	984
Rates, power, in aluminum production.....	741-746
Raynor, Hayden.....	980
Reconstruction Finance Corporation.....	719-720, 728, 746-747, 825, 845, 850, 911, 915-917, 919-920, 948-949, 976
Defense Plant Corporation.....	882-883
Loans obtained from by Reynolds Metals Co. for aluminum production.....	750-753, 755

	Page
Reed, Capt. A. D.....	976
Reed, Philip D.....	980
Reed-Prentice Corporation.....	978
Reeves, A.....	983
Reeves, Floyd W.....	984
Reid, E. W.....	977
Reinartz, P. M.....	977
Remington Rand, Inc.....	732
Renard, G. A.....	985
Representatives, United States House of.....	756, 939
Reserves:	
Aluminum. (See Aluminum reserves.)	
Bauxite. (See Bauxite reserves.)	
Reynolds Metals Co.....	719,
724, 726-727, 734-735, 741, 747, 749, 757-758, 767, 776-781, 788,	
813, 818, 825, 831-832, 836, 841-842, 845, 855, 880, 888, 902, 938,	
944, 948, 970-972.	
Bauxite stocks held by.....	751
Customer of Aluminum Co. of America.....	753-755
Loans obtained from Reconstruction Finance Corporation for alumi-	
num production.....	750-753, 755
Plants:	
Glendale, L. I.....	947
Lister, Ala.....	751-752, 762-763, 849, 851, 856, 947, 951, 957
Longview, Wash.....	751, 762-763, 947
Louisville, Ky.....	947
Richmond, Va.....	947
Reynolds, Richard S.....	773,
777, 811, 813, 822, 860-861, 863, 875, 910, 947-948, 971-972	
Rice, J. Alfred.....	987
Rich's, Inc.....	979
Ridgway, R. H.....	976
Ringie, Donald.....	978
Robinson, P. M.....	977
Rockefeller interests.....	890
Rogers, H. S.....	982, 983
Romaine, Millard.....	978
Roper, Elmo B., Jr.....	985
Rosenlund, Victor E.....	978
Rosenwald Foundation.....	983
Rubber Manufacturers Association.....	977, 983
Rural Electrification Administration.....	983
Russ, E. V.....	980
Russia.....	855, 931
Rutherford, Brig. Gen. H. K.....	980
S. K. F. Industries.....	976
Sabin, S. H.....	985
Safeway Stores, Inc.....	987
St. Joseph Lead Co.....	981
St. Lawrence power project.....	724, 734, 893
St. Paul Urban League.....	983
Saltzstein, R. A.....	978
Sanger, John P.....	986
Savage, Porter.....	986
Schaff, F. A.....	982
Schram, Emil.....	750, 753, 763
Schwable, Capt. F. H.....	972
Seriven, L. E.....	980
Scudder, Stevens & Clark.....	977, 981
Seailles, Jean Charles.....	970
Searle, Eric W.....	987
Sears-Roebuck Co.....	984, 985
Senate, United States.....	757, 821, 895
Seymour, H. F.....	987
Shackleton, Horace E.....	978
Shaw-Walker Co.....	980

	Page
Shepard Niles Crane & Hoist Corp.....	978
Shepard, Roger B.....	979
Shorter, Walter C.....	986
Shultz, George.....	987
Signal Mountain Cement Co.....	962
Simmons, C. A.....	978
Simmons Machine Tool Corporation.....	978
Skilled workers. ( <i>See</i> Workers, skilled.)	
Slaughter, Col. W. R.....	981
Small business, need for letting defense contracts to.....	730-731
<i>See also</i> Hearings, Part 6.	
Smith, Blackwell.....	980
Smith, C. R.....	982
Smith, Charles E.....	986
Smith, Earl E. T.....	979
Smith, Gail.....	984
Smith, L. W.....	977
Smith, Tom F.....	987
Smith (W. T.) Lumber Co.....	977
Snyder, W. W.....	979
Social Security Board.....	985
Socony-Vacuum Oil Co.....	984, 987
South Carolina Electric & Gas Co.....	954
South Carolina Power Co.....	954
Southern California Telephone Co.....	979
Southern Chemical Cotton Co.....	962
Southern Ferro Alloys.....	962
Southwestern Bell Telephone Co.....	979
Spencer, Frank E.....	977
Spencer, Kenneth A.....	979
Stance Distribution.....	985
Standard Aluminum & Alloy Co.....	847, 871-875, 968, 970
Plan for production of aluminum from low-grade bauxite with natural gas as power.....	872-875
Stanley, Admiral W. H.....	980
State Department, United States.....	871, 980
Stedfast, A. M.....	978
Stedfast & Roulston, Inc.....	978
Steinebach, F. G.....	978
Stettinius, Edward R., Jr.....	764, 765, 777, 782, 819-821, 824, 917-918, 972, 980
Stevens (J. P.) & Co.....	985
Stevens, R. T.....	985
Stevenson, Jordan & Harrison.....	978, 979
Stix, Henry A.....	896, 900, 905
Stock, F. J.....	986
Stoughton, D. B.....	978
Stowell, Ernest A.....	984
Stratton, Samuel S.....	972, 980
Straus, L. K.....	980
Suhl, R. L.....	981
Summerhays, Wm. A.....	986
Superheater Co.....	982
Supreme Court, United States.....	919
Swidler, J. C.....	948, 951-952, 956
Swift, D. C.....	986
Swiss Aluminum Co. of Lausanne.....	789, 852
Offer to build aluminum production plant in United States.....	852, 987
<i>See also</i> Neuhausen Co.	
Switzerland.....	745, 852, 931
Sykes, H. G.....	977
T. V. A. ( <i>See</i> Tennessee Valley Authority.)	
Tanners' Council of America.....	977
Teele, S. F.....	986
Temporary National Economic Committee.....	874, 879
Tennessee Products Corporation.....	962



	Page
Tennessee Valley Authority	718-720, 723-726,
741-745, 795-796, 803-804, 807-811, 825, 841, 844-847, 867-870,	
874, 878, 886, 901, 908-914, 919-922, 943, 948-955, 957-965	
Views re Fontana, N. C., project	937-940
Texas Corporation	984
Texas Sheep and Goat Raisers Association	987
Thompson, Lewis, S., Jr.	985
Thorpe, J. E. S.	948
Tower, W. S.	981
Townsend, Clifford	983, 985
Trecker, F. J.	979
Trecker, J. L.	979
Trigg, E. T.	982
Tuckertown power project, Alcoa	866
Uebelacker, D. A.	981
Underwood-Elliott-Fisher Co.	984
Union Carbide & Carbon Corporation	870, 977
Union Oil Co.	984
United Aircraft & Transport Corporation	978
United Aircraft Corp.	812
United Mine Workers of America	981, 984
United Rubber Workers of America	984
United States Gypsum Co.	986
United States Leather Co.	977
United States Steel Corporation	943, 945, 976, 980, 984
United States Transport Service	986
United Wall Paper Factories, Inc.	985
Universal Oil Products Co.	977
University of Chicago	984
University of Pennsylvania	979
University of Virginia	976
University of Wisconsin	976
Van Raalte Co.	985
Vanadium Corporation of America	985
Vaw companies (German aluminum companies)	931
Vereinigte Aluminium Werke	788
Viles, A. L.	983
Virginia Electric & Power Co.	979
Vogelsang, Erwin	977
Vry, L. K.	982
Vultee Aircraft Corporation	733, 962
Waderlow, B. A.	978
Wagner, A. A.	976
Walker, Lt. Comdr., R. J.	972, 981
Wallace, Harry B.	975, 979
Wallgren Co.	986
Walton, F. L.	977
War Department	808, 817, 845, 861, 867, 948, 950-954, 957, 959, 977, 986
War, Under Secretary of	776
Warner & Swasey	982
Warwick, C. L.	986
Waterpower:	
Amount obtained from Government by Aluminum Co. of America	805
Necessity for in manufacture of aluminum	718-720,
724-728, 791-792, 868-871, 877-893	
Owned by Aluminum Co. of America	791-794
Relationship between and aluminum, interest of Federal Power Com-	
mission in	864-865
Watson, Warren	982
Watts Bar Dam	937
Weaver, Robert	983
Weed, F. Chapin	986
Weidlein, E. R.	977
Weinberg, Sidney	985
Welty, G. D.	855
Wendel, Ensign W. H.	983
Wesco Foods Co.	987

	Page
West, J. E.....	976
West Virginia State Board of Education.....	983
Western Cartridge Co.....	801
Western Electric Co.....	979, 984
Western Iron Stores Co.....	979
Westinghouse Electric & Manufacturing Co.....	978, 982, 984
White, E. N.....	979
White (J. G.) Engineering Corporation.....	976
White Sewing Machine Co.....	984
Whiteside, A. D.....	980-982, 985
Whitmore, F. W.....	981
Whitney, H. L.....	980
Wilber, Edward B.....	900
Wilde, H. G.....	976
Wilks, August.....	979
Williams, A. L.....	980
Williamson, C. G.....	978
Wilson, I. W.....	879, 938-941, 943, 945, 948, 959-960, 963, 965
Wilson, R. E.....	977
Winsor, Harris G.....	984
Wizeman, J. W.....	981
Wolf Creek Ordnance Plant.....	962
Wolf Creek power project.....	958-959
Woods, Ralph W.....	984
Workers, skilled, desirability of raising age limits for.....	731-733
World War I.....	744
Wright Field.....	856, 975
Scheduling and Priorities Unit.....	836
Wright, Gordon, Zachry & Parlin.....	980
Wright, T. P.....	977
Wyatt, A. Earl.....	984
Wynne, W. H.....	982
Young, Owen D.....	943
Youngman, William S., Jr.....	948
Youngstown Sheet & Tube Co.....	976, 977
Zelomek, A. W.....	985















[illegible]





